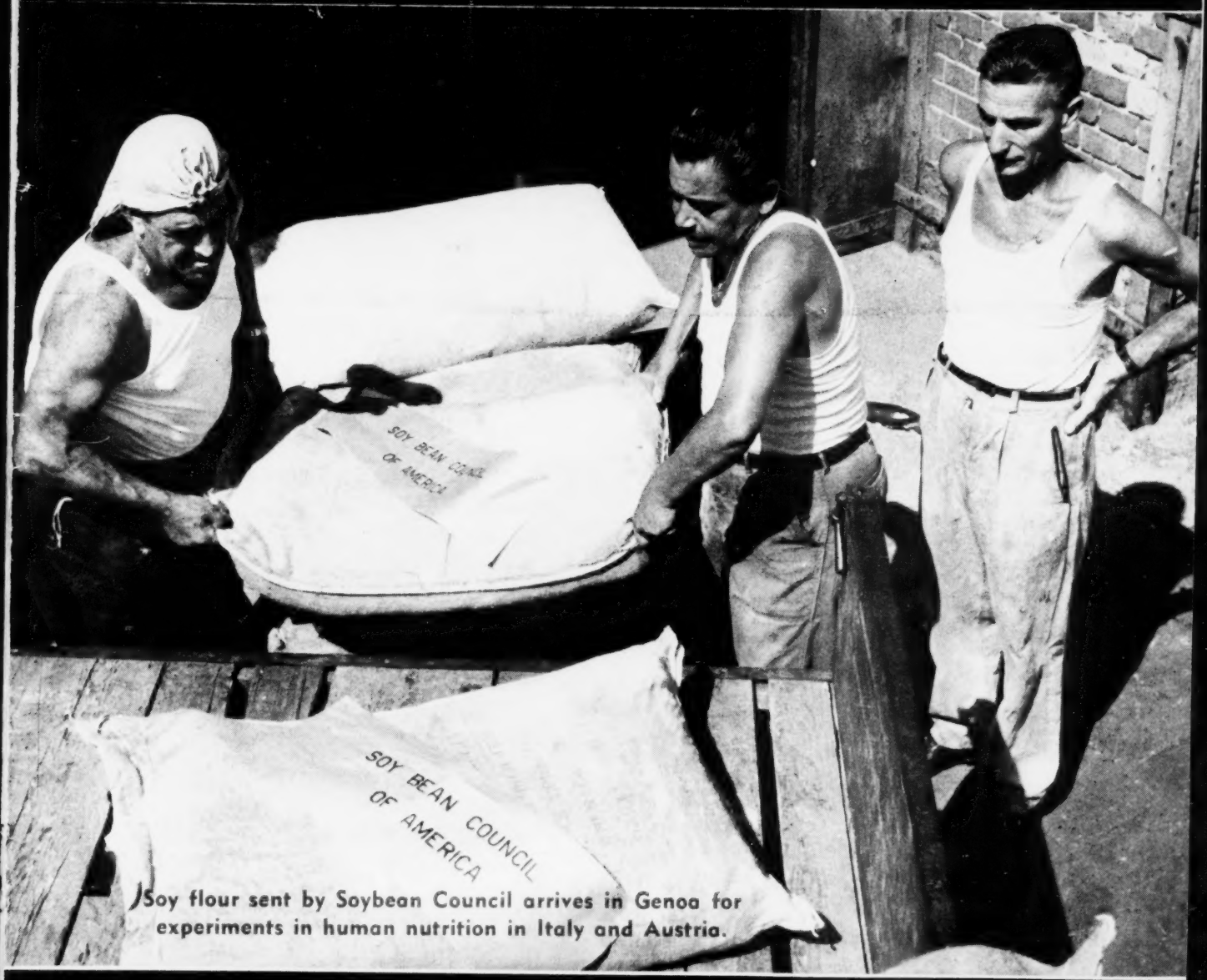
THE Soybean Digest



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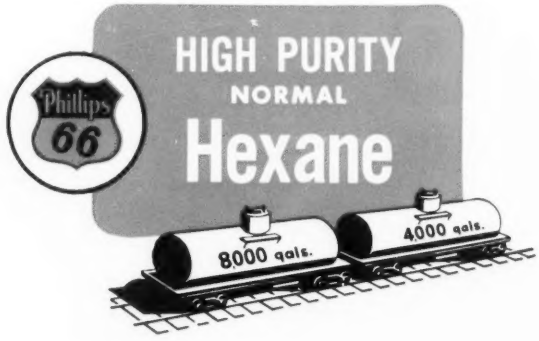

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THE Soybean Digest

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Objectives of the American Soybean Association include the bringing together of all persons interested in the production, distribution and utilization of soybeans; the collection and dissemination of the best available information relating to both the practical and scientific phases of the problems of increased yields coupled with lessened costs; the safeguarding of production against diseases and insect pests; the promotion of the development of new varieties; the encouragement of the interest of federal and state governments and experiment stations; and the rendering of all possible services to the members of the Association.

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EDITOR'S DESK

. . . By GEO. M. STRAYER

BIGGEST CRISIS SINCE WAR By far the largest soybean crop in history is being harvested, and will flow into market channels during coming months. Whether that crop is overestimated or underestimated is immaterial, for it is still big and still poses for us problems our industry has never before faced. Several things are already apparent:

1—Storage on the farm is inadequate, country elevator storage in many areas is not available, and the only sure way of receiving the support price is to have storage facilities available.

2—Even with one of the largest livestock populations in history we will have to promote the sale of soybean oil meal as it has never been promoted in this country before.

3—We have the biggest job of oil promotion on our hands we have ever faced, bar none, and it is going to take the utmost efforts on the part of industry officials and government to keep the oil flowing into consumption around the world.

4—An increase in soybean production of the proportions of the 1958 increase is neither logical nor justifiable, can lead only to disaster for our industry if allowed to happen again.

5—The markets of the world can absorb more soybeans and soybean products, but markets must be developed; it is a time-consuming process.

6—Much as we may deplore the idea, we may have to face up to placing soybeans on the P. L. 480 surplus list at the end of this crop year (October 1959).

7—With lower price supports on other crops, and with a referendum on corn this fall, soybean acreage in 1959 could go downward drastically.

8—As never before we are going to have to supply the exact type of soybeans and soybean products domestic and foreign buyers want, if we are to move the major part of the 1958 crop.

9—Price will become a dominant factor in the next year. With the first apparent surplus staring us in the face we will see terrific pressures used to push the support price downward to move more products into consumption. I predict we will see the 1959 support price figure dive below the $2 level for the first time.

We have been fortunate in never having accumulated surpluses of soybeans as we increased production. It is possible we may not have surpluses this year—but improbable. Final answer will depend on our willingness to sell and sell and sell soybeans and oil and meal in world markets. It can be done. Are we big enough to do the job?

TWO NEW P. L. 480 PROVISIONS The new Public Law 480 bill, passed by Congress just previous to adjournment, contains two provisions of great interest to the producer of soybeans.

The first is the provision that products of oilseeds, including soybean oil, flour and meal, may be made available by the Secretary of Agriculture for relief feeding programs in other countries of the world. This has not been true in the past. Soybeans have never been classified as surplus under P. L. 480, hence have not been available for distribution to the recognized church and charity groups operating in other areas of the world. A tremendous potential usage of soybean oil exists in countries not now using it. Let's hope the Secretary will immediately implement this provision of the new law.

The second provision makes it possible to barter soybeans from CCC stocks for strategic materials from other countries of the world. CCC holds some stocks of 1957-crop soybeans at this time. With a revision of pricing policy on Oct. 1, as is expected, soybeans can move in barter transactions for the first time. This should provide some markets for U. S. soybeans that would not otherwise be supplied from U. S. sources. We hope the responsible officials in USDA will immediately launch this program, also.

ASIATIC SURVEY IS NEXT Shortly after this issue arrives on your desk your editor will be off on another survey of potential soybean and soybean product markets. Rather steadily since 1949 I have accepted such assignments, but this one is especially challenging because it is into the Asiatic countries of the world where the need and demand for both vegetable oil and protein are tremendous and where the limiting factor is exchange with which to buy.

I will be accompanied by Val Hougen of the fats and oils division of Foreign Agricultural Service and E. M. Deck of Anderson, Clayton & Co. Under the auspices of the Soybean Council of America, Inc., we will spend about 2 months exploring possibilities. What, if anything, is done to develop markets for U. S. soybean products in this part of the world will be based, at least in part, on our findings.

Time will determine what the actual reports will suggest and recommend. You'll have the story as it unfolds.

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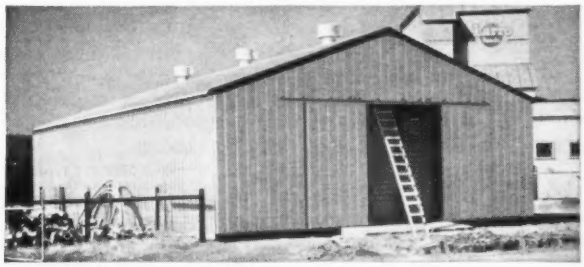

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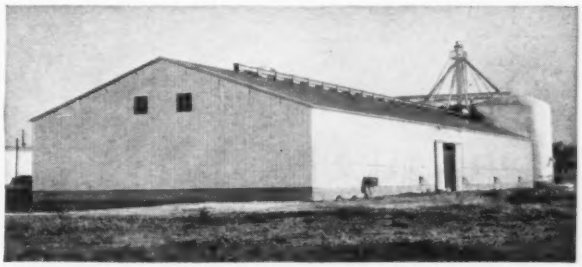

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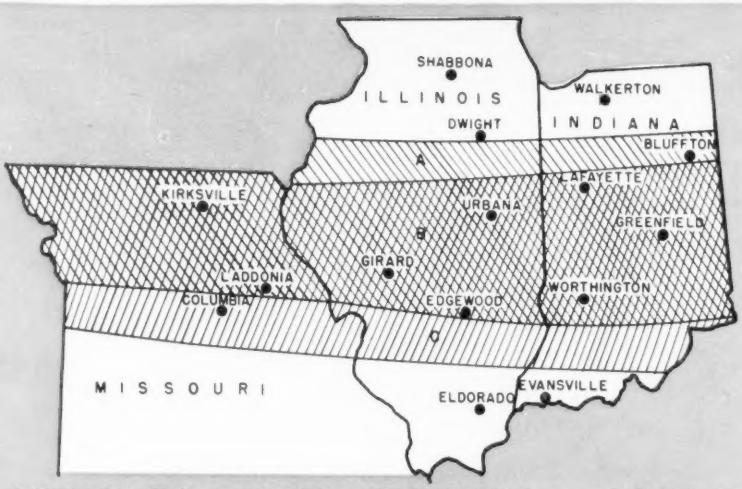
Shelby

A New Soybean Variety

By R. L. BERNARD[1]



AREA where Shelby is adapted for early planting (A), for normal planting as a full-season variety (B), and for late planting (C).

SHELBY, A NEW high-yielding soybean variety, has been developed by the research workers of the U. S. Regional Soybean Laboratory and cooperating state agricultural experiment stations. Shelby is now being increased for release to seed producers in Illinois, Indiana, and Missouri.

In 1958, approximately 737 acres were planted in these states for increase of foundation seeds, and production from this acreage will be made available through the state crop improvement associations to certified seed growers for growing in 1959. It is the nineteenth in a series of improved soybean varieties developed cooperatively by the U. S. Department of Agriculture and the state agricultural experiment stations.

The Shelby variety was developed by selection from the backcross Lincoln x (Lincoln x Richland). This backcross was made in 1942 at the Illinois Agricultural Experiment Station and selecting and testing were practiced for several years to develop the new variety. A BC_1S_4 line, L6-2132, was entered in a preliminary regional test in 1948, and it yielded exceptionally well. Ten BC_1S_6 plants were isolated from this line in 1948, and these sublines were tested in 1950 at Urbana. One of these lines, L9-5139, was much earlier than the other nine strains and yielded almost as well. In regional tests since 1952, this strain has outyielded varieties of equal or earlier maturity, and it has therefore been chosen for release for commercial production. It was given the name Shelby after counties in the three states in the area of its adaptation.

Shelby is related to a later variety, Clark, and two earlier varieties, Chippewa and Renville, which were also developed from the cross Lincoln x (Lincoln x Richland), making this a most unusually productive cross. The new variety is similar to the Clark variety in type of plant growth but is 6 days earlier in maturity. It is also similar to Clark in having brown pubescence, purple flowers, a dull yellow seedcoat, black hilum, and dark brown pods. Shelby is resistant to frogeye leafspot but moderately susceptible to other common leafspot diseases, as are all varieties grown in its area of adaptation.

As shown in Table 1, Shelby is similar in height and lodging resistance to Lincoln, has a tendency to produce seeds of better quality, and is equal to Lincoln in oil and protein content of the seeds. It matures at the same time as Lincoln and about 3 days later than Adams.

Yield data are given in Table 2 for the individual test locations shown on the adaptation map. Shelby has outyielded the earlier varieties, such as Hawkeye, Adams, and Harosoy, south of the northernmost test locations in Illinois, Indiana, and

[1]Research Agronomist, Crops Research Division, Agricultural Research Service, U. S. Department of Agriculture, and Collaborator, Illinois Agricultural Experiment Station.

DR. A. H. PROBST, U. S. Department of Agriculture plant breeder at Purdue University, is shown with a new soybean variety—Shelby—adapted for production in Indiana, Illinois and Missouri. The new variety will be available for seed certification in 1959 and planting by farmers in 1960.

Table 1. Record of Shelby and other varieties in regional tests (combined results from locations in Indiana, Illinois, Missouri, New Jersey, Delaware, Maryland, Ohio, Michigan, Wisconsin, Minnesota, Iowa, South Dakota, and Nebraska). Varieties are listed in order from early to late maturity.

Test period and variety	Yield (bushels A)	Maturity (days)[1]	Lodging (score)[2]	Height (inches)	Seed quality (score)[3]	Seed weight (grams 100)	Seed composition Protein (percent)	Seed composition Oil (percent)
1954-57[4]								
Harosoy	36.4	—8.9	2.3	38	2.0	17.3	41.3	20.6
Hawkeye	35.0	—5.7	1.9	37	1.8	17.7	41.2	21.1
Adams	35.7	—2.5	2.3	39	1.7	14.8	40.0	21.4
SHELBY	37.3	0	2.3	40	1.8	15.4	40.5	20.9
Lincoln	35.7	+0.1	2.4	40	1.9	14.7	40.6	21.0
1952-57[5]								
SHELBY	34.8	0	2.1	40	2.0	15.2	40.6	21.4
Lincoln	32.3	+0.1	2.2	39	2.3	14.2	40.6	21.4
Clark	37.2	+5.7	1.8	40	1.8	15.9	40.6	21.4

[1] Days earlier (—) or later (+) than Shelby. [2] 1, almost all plants erect; 5, almost all plants down. [3] 1, excellent seed quality; 5, extremely poor seed quality. [4] Average based on 20 to 25 locations each year in the northern half of Illinois and in similar latitudes in other states. [5] Average based on about 20 locations each year in central and southern Illinois and in similar latitudes in other states.

Table 2. Yield record of Shelby and other varieties at locations in Indiana, Illinois, and Missouri. Varieties are listed in order from early to late maturity.

Average yield in bushels per acre

	Indiana							Illinois				Missouri		
Variety	Walkerton	Bluffton	Lafayette	Greenfield	Worthington	Shabbona	Dwight	Urbana	Girard	Edgewood	Eldorado	Kirksville	Laddonia	Columbia
Number of years tested:	4	4	4	4	6	4	4	4	3	3	4	3	6	5
Harosoy	43.5	49.2	44.0	30.1		40.0	39.2	38.2	37.7	36.9	35.2	31.2	26.4	21.9
Hawkeye	41.4	44.2	42.5	30.7		37.9	36.8	38.5	35.0	32.9	29.7	28.2	25.1	21.6
Adams	42.8	46.3	43.9	29.8		38.4	40.3	39.2	38.7	34.5	31.7	29.4	24.4	22.4
SHELBY	42.9	45.2	44.9	35.0	43.3	37.3	40.6	38.8	39.3	39.2	37.5	27.5	26.9	22.7
Lincoln	42.0	47.2	41.8	32.7	37.4	37.3	37.1	36.8	35.7	34.9	32.7	25.5	24.9	22.4
Clark			46.9	35.9	47.7			38.5	43.4	39.1	39.3	31.1	25.0	25.6

Missouri. In the central and southern parts of these states, it is outyielded by Clark but has the advantage of being 6 days earlier. Since it outyields Lincoln and Adams and is equal to them in other respects, Shelby should replace all Lincoln acreage and some acreage of the slightly earlier Adams variety. The accompanying map shows the area where the new variety is best adapted.

Lindarin Soybean for North Indiana

By A. H. PROBST and KIRK L. ATHOW [1]

SOYBEAN GROWERS in northern Indiana will welcome the news that a new soybean variety called Lindarin that is tailored to fit their needs will be available soon. Lindarin is a new high yielding, high oil, lodging resistant, early maturing variety that promises to be the best yet north of a line drawn across the state through Remington and Bluffton. It will be of importance also in the north central area where an early maturing, erect growing variety is sometimes required for delayed planting in the latter part of June or where later maturing varieties do not permit timely seeding of wheat.

Lindarin matures about 2 days earlier than Harosoy and 4 days earlier than Hawkeye and is higher in oil content than either of these varieties. Although earlier in maturity than Harosoy and Hawkeye it has averaged about 3% and 8% higher in yield, respectively, than these varieties, in its area of best adaptation. It has averaged 3 days later in maturity and 23% higher in yield than Blackhawk which is recommended only for marshland and muck soils in northern Indiana. Lindarin is more lodging resistant, produces better quality seed, and is somewhat less susceptible to Phytophthora root rot than Harosoy. Like Harosoy, Lindarin is resistant to the races of the downy mildew fungus occurring in northern Indiana and to frogeye leafspot, and it has a low susceptibility to stem canker. Hawkeye is susceptible to the above diseases.

Heavy seed loss occurs frequently from stem canker in the Hawkeye variety.

Lindarin was developed cooperatively by the Midwestern agricultural experiment stations of the North Central Region and the U. S. Regional Soybean Laboratory, U. S. Department of Agriculture. It is the twentieth in a series of improved soybean varieties developed cooperatively by the U. S. Department of Agriculture and state agricultural experiment stations.

AREA where Lindarin is adapted in Indiana: (A) for normal planting as a full-season variety, (B) for late planting.

Lindarin is a pure-line selection from a cross of Mandarin (Ottawa) x Lincoln made at Purdue University in 1945. Early generation selection and testing were done at Purdue. Lindarin was entered in regional tests in 1955. The name Lindarin is a combination of the parental names. Lindarin produces medium-sized yellow seeds with buff-colored seed scars (hilums). The plants are medium in height, somewhat shorter than those of Harosoy or Hawkeye, and rather erect in growth habit with spreading foliage, purple flowers and gray pubescence. The leaves are somewhat different from those of most other varieties in that they have a marked waviness on the outer edges.

About 106 acres of Lindarin were planted on the Agricultural Alumni Seed Improvement Association Farm at Romney, south of Lafayette, in 1958. The seed will be available to qualified certified seed growers in 1959 for further multiplication and to other soybean growers in 1960. Small acreages were planted for multiplication in South Dakota and Wisconsin in 1958 and the variety will be considered for release in these states at a later date.

[1] Research agronomist and agent (plant pathologist), respectively, crops research division, Agricultural Research Service, USDA, and associate professors, departments of agronomy and botany and plant pathology, respectively, Purdue University.

Wisconsin Soybean Research

Third in a series of articles on soybean research at the state experiment stations by agricultural editors.

By RICHARD D. POWERS

Assistant Editor, Wisconsin State Experiment Station

THE MAIN contribution of the University of Wisconsin to soybean research has been in breeding adapted varieties that have pushed the "soybean belt" northward along with the Cornbelt. Wisconsin breeding work on the crop began in 1902.

The list of Wisconsin varieties is a long one. It starts with Wisconsin Early Black and a selection from Ito San followed by Manchu 606 and Mandarin 507—released in the late 1920's by B. D. Leith, G. M. Briggs, and E. J. Delwiche. These were soon followed by Manchu 3 and Mukden 4.

These early varieties have been superseded now, but they served an important purpose in getting soybeans accepted in the state.

James Torrie, Carl Rydberg, and A. M. Strommen soon joined the team of soybean researchers.

Manchu 3 and 606, Mandarin 507, and Mukden 4 soybeans were all *selections*—developed from plants chosen from assorted lots of seed for qualities which would allow them to grow well and give good yields in the North. One more Wisconsin selection was made, and it launched a new era in Wisconsin's soybean breeding.

Flambeau Variety

This was Flambeau — selected from seed obtained from Russian scientists in the mid-30's in exchange for some hybrid corn seed. Varieties grown in Wisconsin developed since Flambeau have been the result of crossing, rather than mere selection. Close cooperation with the U. S. Regional Soybean Breeding Laboratory at Urbana, Ill., and other states of the North Central region has made rapid progress possible.

Varieties developed since Flambeau as a result of this cooperative program and which are grown in Wisconsin are Monroe, Hawkeye, Blackhawk, Chippewa, Norchief, and Grant—all specifically tailored for high yields at various locations throughout Wisconsin and other North Central States.

In the breeding work, the primary aim has been to get high yields of beans that would mature within the growing season in the various parts of the state. Resistance to lodging and height of pods off the ground have been other characteristics considered in the breeding program. Recent varieties have a much higher oil content than older beans—another result of selection.

Wisconsin's research on soybeans has not been confined to the agronomy plots, however. Significant work in animal husbandry, poultry husbandry, and home economics has shown how soybeans work best in animal rations and human diets. Soil scientists have continually tested the fertilization and cultural requirement of soybeans grown under Wisconsin conditions.

Wheel Track Planting

For instance, wheel-track planting promises to save time and labor for soybean growers, and yields may be slightly more than on conventionally planted fields. Tests just completed by A. E. Peterson, A. M. Strommen, E. A. Brickbauer and A. R. Albert showed that increased yields of up to 15% were obtained from soybeans spaced with 30 inches between rows instead of the conventional 40 inches.

The seed is dropped on rough-plowed land, thus saving extra tillage operations required for smooth seedbeds. Up to 40% of tillage costs are saved when corn is planted this way, the researchers say.

This same group studied fertility needs of soybeans last year and concluded that extra fertilizer doesn't pay on land that will produce as much as 75 bushels of corn per acre. They also found that some soils need a small amount of extra boron for top soybean yields.

Wisconsin feed lots and poultry pens also yielded a series of significant findings during the 1930's when Gustav Bohstedt, J. G. Halpin and J. W. Hayward experimented with oil meals prepared in various ways.

Bohstedt found that high grade soybean meal had to be prepared under high temperatures. Properly prepared, he found, soybean oil meal came about as near as any plant protein in equalling animal protein in pig rations. Wide use of soybean oil meal has naturally brought large reductions in swine ration costs.

Halpin came to a similar conclusion with poultry rations. In later research with W. W. Cravens and C. A. Elvehjem, he learned that processing temperatures could also be too high and so was able to sharpen processing recommendations even further.

Nutritionist Paul Phillips added to the information on soybean meal feeding by finding that soybean phosphorus is readily utilized by animals and that any shortcomings in its protein quality can be overcome by adding a small amount of liver powder to the ration.

PROF. JAMES TORRIE in soybean breeding field on University Farm.

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THE NEWS IN BRIEF

THE CROP, MARKETS AND OTHER ITEMS OF NOTE

The Outlook For Storage Of 1958 Crop

Because of the huge soybean crop, storage space may not be available for everyone who wants it, but the **real pressure will not come from central producing areas,** according to T. A. Hieronymus, University of Illinois grain marketing specialist. He says the storage problem is less acute in central Illinois than in southern Illinois, Missouri and Arkansas.

Quoting Trade News Service, New York City: "Any number in the trade are still most uneasy over the possibility of the farmer being unable to find storage for his soybean crop. It is necessary that the farmer find room for about 300 million bushels in the weeks ahead. It is more than likely that for the first time on record the soybean situation will not only violate the loan base, but will remain there for quite a time, and for a considerable period thereafter it is probable that the loan base will prove to be the ceiling."

Outlook For Coming Year

Hieronymus of the University of Illinois predicts an average soybean meal price of $55 per ton bulk Decatur for the year beginning Oct. 1, based on a crush of 355 million bushels of soybeans, rather stable egg, broiler, and dairy feed sales, a trend increase in hog feed sales, and a rather substantial decline in hog and cattle prices.

Concerning the soybean oil outlook, he states: "I think that starting from a base of 9½¢ to 10¢ the oil price may work up moderately next spring, say 1¢. This year in the United States we will produce about 300 million pounds more lard, 75 million pounds more cottonseed oil, and 170 million pounds more soybean oil than last year. We will use about 150 million more of the three, leaving a needed export increase of 400 million." Hieronymus sees increased export availability from the United States and increased import requirements of Europe plus decreased competing supplies from other parts of the world as about balancing out for the coming year.

Hieronymus says all factors add up to about $2.18 soybeans, or just about the loan. He places the **carryover from the 1958 crop into the 1959 marketing year at 30 million bushels.** Supplies are large enough that an important increase in price cannot be expected and the product markets strong enough to nearly get rid of the entire supply.

Quoting Hieronymus: "A point needs to be made to farmers in the soybean belt. Oil is in overabundance in the world. Meal is in short supply. Soybeans are low in oil and high in meal compared to competing oilseeds and accordingly hold an advantage. **The way to keep expanding soybean production is to price oil cheap and drive out some competitors.** It would be a lot easier to do if we could price oil down a cent or two. This would require lower supports on soybeans."

Fats, Oils Supplies up Next Year

Prospects are that next year's supply of edible fats, oils and oilseeds will exceed the 11.7 billion pounds (oil equivalent) for the year just ended by about 15%, reports Agricultural Marketing Service. A large part of this increase is attributed to the prospective 17% rise in soybean output. However, lard output and cottonseed oil production are expected to be up considerably. Carryover stocks of food fats on Oct. 1 are expected to be up about 20% from the relatively low level of a year earlier.

Competition in world markets is likely to continue keen as exportable supplies continue large in several foreign countries. Current prospects indicate that **world output of fats and oils in 1959, which includes the 1958 fall-harvested crops in the United States, probably will increase slightly and set a new record.** However, reasonably reliable estimates on the size of foreign crops, such as Mediterranean olive oil, African peanuts,

and Indian and Chinese oilseeds, will not be available for another 3 months.

Report on Japanese Purchases

A Japanese source estimates that the purchase of new-crop U. S. soybeans during October through December will total 192,000 metric tons or 7 million bushels. The Japanese are worried about loading delays and have scheduled the great bulk of the shipments for October and November.

It now appears that the total soybean import budget for the September-March period (second half fiscal 1958) for Japan will be 358,000 metric tons or 13.1 million bushels. This is a cut of 27,000 metric tons (about 1 million bushels) from the original plan set at the beginning of the fiscal year.

Japan plans to import 25,000 metric tons of soybean oil meal from Russia in the September-December period, over the opposition of Japanese soybean processors and Ministry of Agriculture.

U.S. Market In Carribean Area

A growing market for U. S.-produced soybean oil meal and mixed feeds, and for U. S. vegetable oils was found in Mexico and Caribbean countries by a government-industry team sponsored by the Soybean Council of America and the U. S. Department of Agriculture. Members of the team were Albert M. Kohl, Spencer Kellogg & Sons, Inc., and Volorus H. Hougen, Foreign Agricultural Service.

The men reported there is considerable copra production in the area, including Mexico, Jamaica, the West Indies Federation, British Guiana and Surinam, but there is need for additional supplies of edible oils and meal.

Livestock production and feeding are growing rapidly in Mexico and the **Mexican market for U. S. soybeans and cakes and meals is expected to increase.** Imports of soybeans probably will be established soon due to the availability of unused processing capacity in Mexico.

The Soybean Council can lend technical help to further increase the use of U. S. soybean oil meal in animal and poultry husbandry in Cuba, according to the survey team. The Cuban market is primarily a lard market for the fat portion of the human diet, but there is also a need and demand for edible liquid oils.

Meal requirements for livestock are growing in Jamaica and in the future a substantial tonnage could be imported.

Serious Disease Situation

J. E. Johnson, Champaign, Ill., reports the disease situation one of the most serious his area has ever experienced due to the cool weather during much of the season. Champaign County farm adviser Earl Buntz has revised downward his estimate of average soybean yields for the county due to this factor.

J. M. Dunleavy and C. R. Weber, Iowa State College, note that incidence of stem canker in Iowa is much higher than in recent years.

Some Late Reports on 1958 Crop

Johnson at Champaign: Harvesting will be long drawn out. Two weeks passed now with more soybeans cut yesterday (Sunday) than any 2 days for past 2 weeks. Weeds and wild millet causing some delay. Johnson reports a 30-bushel average yield on five fields harvested on his farms.

Walter W. McLaughlin, Citizens National Bank, Decatur, Ill.: With 75% of the beans harvested south of Decatur there is a very wide variation in yield depending on location.

J. B. Edmondson, Danville, Ind.: Farmers are champing at the bit here, waiting for the weather to dry. Half the crop would be in now had the humidity cooperated. Smart weeds, pig and jimson weeds will really test the combines.

Howard E. Grow, Farmer Seed & Nursery Co., Faribault, Minn.: Harvest much later than had previously been reported and expected. Yields 15%-20% less than 1957. Weeds much less than 1957.

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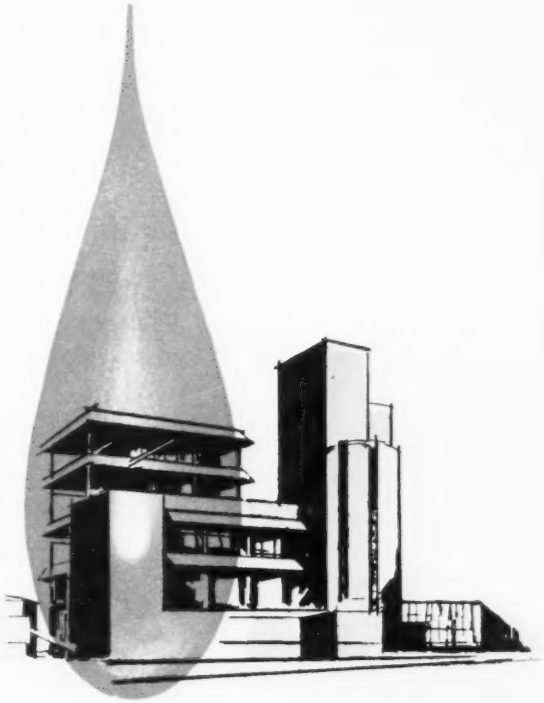

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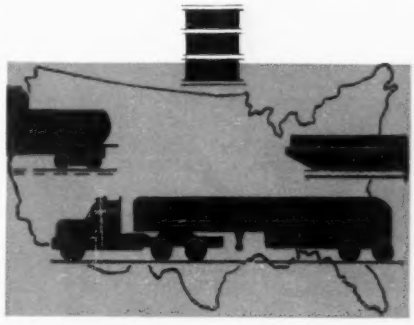

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Reports of research on soybean oil meal and oil, and use of U. S. soybeans in Japan. Dr. Smith's speech before the American Soybean Association convention.

Progress in Research on Soybeans

By A. K. SMITH

Northern Utilization Research and Development Division, Agricultural Research Service, U. S. Department of Agriculture, Peoria, Ill.

IT IS MY PLEASURE to report on some of the recent research activities of the Northern Utilization Research and Development Division. We have a rather extensive research program on soybean oil and oil meal designed to increase their industrial, feed, and food utilization.

Our present program places more emphasis on basic and fundamental chemistry than in previous years. It is realized more than ever that to develop new ideas and new uses we must have a more detailed knowledge of the composition of our agricultural commodities, a more basic understanding of their chemical, physical, and biological properties, and a more complete knowledge of their chemical reactions and interactions.

This report is concerned principally with the results of research on the chemistry of soybean oil stabilization, with the "alleged antithiamin" factor in soybeans, and with a recent investigation on the use of U. S. soybeans in Japan.

Soybean Oil Stability

Stability of vegetable oils has been a problem of the food industry for many years. Since the beginning of the soybean industry in the United States, the stability of soybean oil has been greatly improved through chemical research. Some of the more important factors known to promote the instability of oil through autoxidation are: (a) the occurrence of polyunsaturated fatty acids in the oil, such as linolenic; (b) the presence of minute amounts of metal ions, such as copper, zinc, iron, nickel, and others that occur naturally in the oil or as contaminants from the processing equipment; and (c) the effect of light and elevated temperatures (1).

On the other hand, it is known that stability is improved: (a) by naturally occurring antioxidants in the oil, such as tocopherol (2, 3) and (b) by the use of metal-inactivating or sequestering agents, such as citric, phosphoric, and phytic acids. The interaction of these several opposing forces is a major factor in soybean oil stability. However, present knowledge on the interaction is inadequate for predicting satisfactorily the stability of a given oil or as a basis for proposing new methods of further improving oil stability.

In the handling and processing of soybeans and soybean oil their polyunsaturated fatty acid goes through a slow but progressive autoxidation. For many years the measurement of this change in terms of peroxide value (P.V.) was an accepted method of estimating oil stability or its possible shelf life. However, the use of peroxide values has never been entirely satisfactory, because they often lead to conclusions which do not prove to be reliable.

Recent research at the Northern Division concerns a further study of the autoxidation of vegetable oils and the relation of oxidized fat to the destruction of tocopherol, and how this relationship might be influenced by trace metals in the oil. In studies on oil stability one of the important questions to be answered is what controls the destruction of tocopherol.

From recent research it is known that in fat systems the destruction of tocopherol by direct air oxidation is negligible. Our oil chemists have shown recently that rapid oxidation of tocopherol in metal-free oils does not occur until after a certain induction period during which time there is an accumulation of a relatively high level of peroxides. We now believe that the buildup of peroxides or the induction period is more directly associated to the linoleic acid content of the system than to its iodine value.

However, our most important recent discovery toward solving the puzzle of oil instability is that destruction of tocopherol by peroxides is catalyzed by a reaction product of the fatty acid-peroxides with the metal ions in the system (4). In other words, the fatty acid peroxides accumulated during the induction period react with the trace metals and this reaction product destroys tocopherol. While the information that trace metals are a major factor in the stabilizing of soybean oil is not new, the discovery of the mechanism of how they function is fundamental to further studies on stabilizing soybean oil. We now know that at high peroxide levels trace metals react with the peroxide in preference to presently known sequestering agents.

This newly discovered fact shows that known metal-inactivating compounds do not perform their intended function as adequately as formerly thought. The discovery of this new mechanism explaining oil instability emphasizes the need for renewed effort to locate or synthesize improved metal-inactivators for blocking the destruction of tocopherol.

Other new and useful information was developed during this research. It was found that when the rate of tocopherol destruction is known, then a more reliable interpretation of peroxide values in terms of oil stability is possible. Also it was concluded that much of the oxidative stability imparted to soybean oil by hydrogenation may be lost by reason of the amount of residual catalyst remaining in the fat. Thus commercial hydrogenated soybean oils may not have long induction periods

unless protected by metal-inactivating agents.

Another basic attack on soybean oil utilization at Peoria is the organization of what is normally referred to as a "hot" laboratory, or a research unit that uses radioactive isotopes for labeling or tagging fatty acids as a means of following their subsequent chemical reactions. Although radioactive carbon 14 and nitrogen 15 will eventually be used in these studies, the initial investigation uses tritium or radioactive hydrogen (H^3). The use of tritium gas for labeling has proved to be a much simpler technique than labeling with radioactive carbon and nitrogen. Tritium serves both as a source of active radiation and also as the inserted label.

Tritiated esters of saturated fatty acids have been prepared for the first time by irradiation for 17-18 days with gaseous tritium. This exposure results (5) in a simple substitution of tritium for hydrogen in the fatty acids. These labeled compounds have found immediate application at the Northern Laboratory in completing work on glyceride structure and in autoxidation studies.

An unexpected reaction was discovered in treating unsaturated fatty acids with tritium. Addition of tritium occurs, rather than substitution of hydrogen as previously assumed. Thus irradiated methyl oleate gives tritiated methyl stearate, not the expected tritiated methyl oleate. This knowledge is vital to biological and pharmaceutical research workers, who have been attracted to the direct tritiation procedure because of the ease with which complex molecules can be labeled.

These labeled molecules provide the best method yet found to isolate and to identify compounds responsible for the odors and flavors of reverted soybean oil, and for measuring the factors responsible for reversion. This type of basic research is the surest way of finding practical methods of making further improvements in soybean oil stability. Because oxidation is also important in production of protective coatings and in the synthesis of new products from fatty acids, it is anticipated that the use of tagged molecules will be a powerful tool in our industrial oils research program.

Alleged Antithiamin Factor

The soybean is a rich source of thiamin or vitamin B_1 important in maintaining a good appetite, normal digestion, gastro-intestinal activity, growth, and other body functions. The disappearance or destruction of thiamin in feed and foods during processing and storage is of widespread interest. Two Indian workers, Bhagvat and Devi (6) in 1944 reported that soybeans contain an unknown factor that destroys thiamin. Their report was based on their inability to obtain a true analytical assay for thiamin added to soybean meal. They also reported a similar loss of thiamin added to oriental millet, which when fed to rats and pigeons produced symptoms of thiamin deficiency.

The Indian workers may have been influenced in their conclusion by the already known thiamin-destroying enzymes in live yeasts and raw carp. Because thiamin is an important feed and food factor and because thiamin-destroying enzymes are known to occur in other products, we undertook an investigation (7) to evaluate the so-called antithiamin factor in soybeans.

Thiamin occurs in natural products in both the free state and combined in many forms. For example, in soybeans thiamin is partly in the free state and partly combined as cocarboxylase (pyrophosphate ester). The assay method for thiamin depends on formation of thiochrome, a blue fluorescent compound, which results from oxidation of free thiamin. Thus an assay procedure needs to provide for the converting of combined thiamin to the free state with an enzyme system containing phosphatase.

In order to identify and possibly to isolate the alleged antithiamin factor the work of Bhagvat and Devi was repeated and their method of assay compared with Johnson's method (8) which is a recognized standard procedure in this country. The results of these investigations failed to demonstrate an antithiamin factor in soybeans. Rather, it was found that the conclusions of the Indian workers were based on an improper assay procedure.

We concluded that the alleged antithiamin factor in soybeans is an analytical artifact peculiar to the assay methods used by the Indian investigators. From our experiments we also found that about 40% of soybean thiamin is free and 60% combined as cocarboxylase.

LABORATORIES of the Masuko Food Co. in Tochigi City, north of Tokyo. Dr. Smith is second from right.

U. S. Soybeans in Japan

Through the cooperative effort of the American Soybean Association and USDA Foreign Agricultural Service and Agricultural Research Service, I spent 2 months in Japan visiting food-processing plants and oil mills for the purpose of evaluating problems related to the use of U. S. soybeans in that country. Also from this investigation I was expected to make recommendations on the type of research that would increase the use of U. S. soybeans in Japan.

For evaluating the results of my survey (9) soybean utilization in Japan can be divided into two separate areas: (a) modern oil mill processing, and (b) the making of their traditional foods, such as miso, fresh and frozen tofu, natto, and hamanatto. These food products and some others account for nearly 50% of soybean utilization in Japan. These foods are processed by methods developed long before the coming of science into industry and the adoption of modern engineering methods to these processes has been slow.

Tradition itself appears to be a factor in retarding modernization of some of their food industries. In contrast, oil mill processing in Japan resembles its counterpart in the United States with the rather major exception that the soybean meal goes primarily into food uses rather than animal feeds.

Soybeans presently imported by Japan from the States are used mostly by the oil-processing mills. For this type of processing, our soybeans are equal to or perhaps more satisfactory than soybeans from other countries except for the foreign material, and split, broken, and dark-colored beans they contain. U. S. soybeans have a higher oil content than beans from other sources and their high oil is advantageous in oil processing.

Foreign Matter and Broken Beans

Because of Japan's utilization of soybeans in food products, the foreign matter, and split and broken beans present a different problem than they do in the United States. Exports to Japan are mostly a No. 2 grade, which permits 20% splits, 3% damaged beans, 2% foreign matter, and 2% brown, black, or bicolored beans. These fractions add up to a total of 27% of material with varied characteristics that does not process properly in most Japanese foods.

A substantial percentage of their traditional foods is made in very small plants; for example, there are an estimated 50,000 tofu makers in Japan; many of them process only a few bushels of beans per day. These small operators claim they cannot afford mechanical seed-cleaning equipment, and hand cleaning adds to the processing labor costs.

In food processes where whole beans are soaked in water and cooked with steam, as in the preliminary treatment for making miso, the split and broken beans absorb water, cook more rapidly than whole beans, and do not make a uniform product. Processes that ferment whole beans are natto and hamanatto, where in addition to the problems of water absorption and cooking, the appearance of split, broken, and dark-colored beans in the finished product is undesirable; also, the broken beans do not ferment at the same rate as whole beans. Thus broken beans and foreign matter are a serious problem to these small operators.

Foreign matter is not as serious a problem for the large Japanese mills as they have elaborate mechanical equipment for cleaning their beans. Even so, foreign matter is more of a problem for them than for U. S. oil mill operators because in Japan the meal is consumed mostly in food products, and it must be as free as possible of foreign bodies.

In comparison to U. S. soybeans Japanese beans are very clean. This difference in content of foreign matter arises from the widely different farming practices in the two countries. Farms in Japan average 2.5 acres and such small-scale hand operations result in clean beans delivered in bags to the soybean factory. Consequently the processor of traditional foods has never needed to equip his plant to handle foreign matter. Foreign matter in U. S. soybeans arises from our mechanical farming methods and the split and broken beans from rapid bulk handling. The extra handling for export further aggravates the breakage problem.

It must be recognized that foreign matter and broken beans are unrelated to the natural quality of our soybeans, but that they play a very important role in marketing U. S. soybeans in Japan. Because this problem of foreign matter and split and broken beans is a complaint made by soybean processors in Japan and because this problem is always in contention between seller and buyer, it needs a complete investigation of its relation to soybean export. A detailed study should be made of harvesting and handling soybeans from the combine on the farm to the unloading docks in Japan or perhaps even to the food processor, to find the most economical place in this chain of events for solving the foreign matter problem.

Food Problems

The survey was concentrated more on problems related to using U. S. soybeans in traditional food than using them in oil-mill processing. The practical soybean food problems in Japan are basically the same as food problems in other advanced countries, that is to say, they are concerned with adjusting the appearance, color, flavor, consistency, and texture of their products to satisfy their customers at the lowest possible cost. There are no fixed standards for these food qualities and conclusions are necessarily relative and vary with quality of product of a particular factory and, perhaps also, with the living standards of the people in the community served. However, it was generally reported that the color, flavor, and texture of foods from U. S. soybeans are not as satisfactory as products from Japanese beans.

Some processors reported that they do not use any U. S. soybeans, others mix 10% to 20% with domestic beans, and a few use 100% U. S. soybeans in certain products. The preference for their own soybeans is not on a price basis as the cost of domestic beans is higher. However, it must be remembered that the cost difference is partly equalized in removing foreign matter.

Besides differences in quality of products, they reported differences in processing characteristics. Many processors stated that U. S. soybeans have a slower rate of water absorption, are slower to cook, are nonuniform in size, and may differ in their rate of fermentation. So far as we know, there has never been any evaluation of these reported differences. Until more precise information is available, we must be guided by experiences of the processors. These problems should be given serious consideration in any program designed to increase the use of U. S. soybeans in Japan.

Varietal Differences

Japan and the United States grow many varieties of soybeans in different soils and in a wide range of climates. All these factors are known to influence composition and properties of soybeans. Hence, it is not expected that all varieties, whether Japanese or American, would process in exactly the same manner or give identical food products. Varietal differences between American and Japanese soybeans are considered as the basis for most of the problems in the use of U. S. soybeans in Japanese foods.

For more than 30 years the U. S. soybean breeding and improvement program has been planned to satisfy the needs of our farmers and processors, for example, to give high yields and high oil content. The development of soybean varieties for food uses has not been included in our breeding program. Now we are finding that other countries need and want our soybeans for food, and it is to our advantage to supply this market, even though new problems are created.

An examination of the principal American varieties shows a rather wide difference in the color of their seedcoats. There is a marked difference in the pigmentation of hulls and a notable difference in color of cotyledons. Perhaps the most pronounced difference is the black hila of many U. S. varieties. This characteristic may be a major factor in the color problem.

Flavor is another factor associated with variety. However, experience

with processing and cooking of soybeans indicates that variations in flavor of the final product depend to a greater extent on method of processing than on soybean variety.

These speculations serve to indicate that the problems of using U. S. soybeans in Japanese foods are solvable and to indicate possible points for attacking the problems. Two different approaches are suggested: (a) to supply Japan selected varieties of U. S. soybeans comparable in food uses to their own beans, and (b) to modify Japanese food-processing methods so that beans from the U. S. can be used to give as equally good products as beans grown in Japan.

Under present methods of marketing and of exporting soybeans, selection of particular varieties is difficult. Shipping beans, identity preserved, would certainly make a substantial increase in the export price, but the increased cost of this effort would be reduced eventually as the number of soybean varieties suitable for food is increased. However, our soybean breeding program should be modified to include new varieties, whenever possible, that have properties suitable for food uses. This proposal is not inconsistent with our own changing domestic needs.

A plant-breeding program aimed at modifying the hull and other properties of our soybeans will require considerable time; for this reason it is believed that the other approach, which is to modify processing methods, holds more immediate promise of increasing the use of our soybeans in Japan. Laboratory and pilot-plant research are needed to develop the necessary information for making changes in processing.

Because oriental foods are so very different from occidental foods, it is recommended that much of this research be carried out in Japan by Japanese workers. Thus, the results of the laboratory and pilot-plant work could be easily demonstrated and made available to the Japanese food processors. Doing the work in Japan would help also in overcoming the language barrier, which is significant. Because the United States is many years ahead of Japan in food technology and in certain areas of soybean processing, technical assistance in planning its research program on U. S. soybeans would be invaluable. It should not be expected that the traditional food processes would be completely modernized, but the introduction of new ideas and new processing methods, within the limits of their economy, would be welcomed by the Japanese.

New Products Research

In addition to increasing use of U. S. soybeans in traditional Japanese foods, an excellent opportunity exists for a further increase through developing new products or improving foods that now have only limited markets in the Orient. Examples are: soybean milk; soy flour in noodles, bread, and other wheat products; soybean cheese, soybean yogurt, and isolated protein, to mention only the more important. Also, developing industrial uses for soybean meal and for soy protein provides another opportunity to increase exports of U. S. soybeans to Japan.

Research and development on new uses of soybeans in the States have followed a different pattern and are more advanced than in Japan. Certain of these uses could be introduced with very little additional research. The work would mostly be a problem of adjusting known processes to Japanese industries.

Soy Flour and Isolated Protein For Foods

Soybean flour and isolated soybean protein are American products; the flour has been used to some extent in Europe.

Cereals, such as rice, wheat, and barley, are the most abundant foods in the world because they supply more calories per acre than other crops. However, cereal grains are low in protein, and the protein they do contain has a poor balance of essential amino acids; that is to say, their proteins are inadequate for good nutrition. Cereals are noted for their low lysine content and soybean protein supplies this deficiency. The most economical method of improving the nutritional status of people with cereal diets is by fortification with soybean protein. The addition of only 4% or 5% of soy protein to wheat flour makes a remarkable improvement in its protein quality.

Japan consumes large quantities of noodles and is expanding her consumption of wheat in the form of American-type bread and other bakery goods. There is now available sufficient technical information for using soy flour and protein in noodles and bread. The present need for introducing the product is not so much for new research, but rather U. S. technical assistance to teach new methods and encourage the adoption of new products. This work could very profitably be supplemented by nutritional research demonstrating the advantages of fortifying Japanese cereal products with soybean protein; the Ministry of Health and Welfare would thus be assisted in demonstrating to the Japanese people an economical method of improving their diet.

Isolated Soybean Protein

Current outlets in the United States for isolated soybean protein are mostly industrial, such as for paper coating, sizing, lamination, latex paints, fire-extinguisher foam, and others. However, with the increasing interest in its use in foods, it is anticipated that such uses will soon catch up to and even surpass industrial uses. Japanese processors have had an interest in isolated protein for several years, but none is produced. Technical assistance to establish factories for isolating soybean protein would appear to be another means of increasing the export of U. S. soybeans. Japan has industries where uses for the protein would be very similar to those in the United States.

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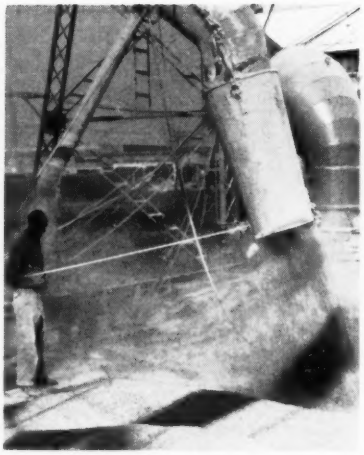


BULK grain loading at the Port.

PUBLIC GRAIN ELEVATOR of the Port of New Orleans is in the midst of a hurry-up job of expansion to prevent a glut of ships and barges when the Midwest's expected harvest of soybeans and other crops moves down the Mississippi Valley this fall, says Robert W. French, Port director.

A total of $7 million of long-range improvements will extend wharfage, loading and unloading facilities to increase from two to three the number of barges to be unloaded and the number of ships loading from two to three, all simultaneously. The elevator's present capacity of 5.1 million bushels will be increased by the addition of 2.2 million bushels in new tank storage.

There have been two basic problems at the elevator, says French:

First, the fairly steady growth in grain business through the Port since World War II, and the great acceleration in that growth the past year. Yearly increase in grain shipments through New Orleans from 1949 through 1957 averaged 6.2%, but in the fiscal year ending June 30, shipments were 43% greater than in the previous fiscal period.

Second, was the emergency precipitated last June by an unexpectedly drastic shift in the in-movement from rail to barge coupled with a contra-seasonal increase in grain handled at the elevator.

At the first sign of difficulty, operations at the elevator were put on a 24-hour, 7-day week basis, and other emergency steps were taken.

Since, contracts have been let for the construction on the elevator wharf of a standard marine leg with a capacity of 20,000 bushels per hour, to be completed in October. When this leg is placed in operation, the elevator's barge unloading capacity will immediately be stepped up about 45% to a daily total of about 500,000 bushels. This leg will have automatic shovel equipment which is also being installed on the remaining stationary marine leg that lacks such equipment.

Mr. French lists the following long-range projects:

$380,000 worth of grain cleaning equipment to increase cleaning capacity and speed up vessel loading, to be completed Dec. 31.

Additional grain storage and conveyor equipment which will increase storage 2.2 million bushels, to give a gross storage capacity for the ele-

BERTHING space is provided by the Port Elevator for three ships. Loading is directly by funnels into the holds. There is also berthing space for one ship at the sacking plant, and upstream are two marine legs where grain-laden barges are unloaded.

vator of 7.5 million bushels. It is planned that 12 steel tanks each 55 feet in diameter and 96 feet high will be installed. Cost of work is estimated at $1.3 million and it is scheduled to be completed June 30, 1959.

Three new movable marine legs, together with a 350-foot extension of the unloading wharf, to replace the existing two grain unloaders. These will provide a total unloading capacity of 65,000 bushels per hour, over 50% more than present capacity. Estimated completion date is Dec. 31, 1959, and cost, $2.2 million.

Construction of a third shipping berth to provide for additional shiploading facilities to bring total loading capacity to 150,000 bushels per hour. Estimated cost is $1.1 million and approximate completion date is June 30, 1960.

Modification of present dock conveyors to increase efficiency of shiploading facilities at least 15% to 20%. Estimated cost is $800,000 and completion date, June 30, 1960.

Expansion of sacking facilities to increase warehouse space by approximately 50%. Capacity of present sacking bins will be doubled, and four more sackers with all necessary appurtenances will be added. Estimated cost, $750,000. To be completed by Dec. 31, 1959. This work will include the installation of a new 36-inch belt conveyor to be entirely independent of other elevator operations.

Atomic Radiation Tests On Soybeans Near Complete

RESEARCH workers at the University of Illinois are nearing completion of studies to find out the effects of atomic radiation for producing disease-resistant soybeans.

D. W. Chamberlain, plant disease investigator with the U. S. Regional Soybean Laboratory, reports that soybean seed was irradiated 3 years ago to see if this would produce disease-resistant plants.

So far Clark and Adams have been eliminated because no desirable plants resulted.

Chamberlain reports that they have selected plants from a Korean soybean that appears to resist brown stem rot. They have crossed one of these to a susceptible variety to see if the cross will inherit the disease resistance.

Three introductions of soybeans from Manchuria have been found resistant to bacterial blight. The plant breeders have crossed these to see if they can produce disease-resistant crosses.

Dr. Borsook Is Food Man of Year

A MAN FAMOUS for his work with the American soybean has been singled out as 1958 Food Man of the Year. Dr. Henry Borsook, professor of biochemistry at the California Institute of Technology, was awarded this Certificate of Recognition at the September meeting of the Southern California Institute of Food Technologists.

This citation was given Dr. Borsook for his efforts over a period of 14 years in the development and promotion of soy-based Multi-Purpose Food (MPF) as research director of the nonprofit Meals for Millions Foundation.

Says John Sawyer, president of the American Soybean Association:

"Our congratulations to Dr. Henry Borsook of the California Institute of Technology on his recognition as Food Man of the Year by the Institute of Food Technologists. We feel that soybean producers everywhere have a special interest in Dr. Borsook's efforts to conquer world hunger. The Multi-Purpose Food which he developed as a low-cost yet satisfying meal is largely a soybean food. The soybean is playing a very great role indeed in raising the dietary levels of the people of the world. That there are vastly greater opportunities ahead has long been recognized by Dr. Borsook and the Meals for Millions Foundation."

His work with Meals for Millions began 2 years before the Foundation was incorporated. In 1944 Clifford Clinton, Los Angeles restaurateur, asked Dr. Borsook to develop a food high in nutrition, low in cost, compact, stable in all climates, easy to cook, and inoffensive to religious principles of any people.

The result was Multi-Purpose Food. Dr. Borsook fortified 2 ounces of processed soybean oil meal to make it meet one-third of the National Research Council's recommended daily nutritive allowance for a man, and also one-third of the Food and Drug Administration's "minimum daily requirements" (whichever was highest) for protein of good quality, calcium, iron, phosphorus, iodine, vitamins A, B-1, riboflavin (B-2), niacinamide, and D. It lacked vitamin C (unstable in cooked foods) and was low in calories (present in all foods).

Except for vitamin C and calories Borsook pointed out that 2 ounces of this food provided nutrients comparable in amount to those found in a meal of a quarter of a pound of beef, a glass of milk, a dish of green peas, and an average sized potato. It was an example of how abundant oilseed meals of the world, now little used for human food, could correct and adequately supplement the deficient diets of all the world's people. The cost of this product in the United States was approximately 3¢ a meal.

Record Oil Shipment by Cargill

RECORD SOYBEAN oil shipment of 40 cars was made recently by Cargill, Inc's, vegetable oil division plant in Cedar Rapids, Iowa. The shipment, largest single delivery ever made by the Cedar Rapids plant, represented the harvest of some 15,000 acres—230,000 bushels of soybeans—crushed to produce 320,000 gallons of oil. The oil was marked for export—most of it to Spain. Filling the tankcar is Robert Beck as Clarence Bohlander, Cargill plant superintendent, left, and John Vaughn, shift foreman, check progress.

USDA-Trade Team on Asia Trip

REPRESENTATIVES of the soybean and cotton industries and a representative of the USDA's Foreign Agricultural Service will soon be making a tour of the Far East to investigate the possibilities for market development for U. S. oilseeds, oils and vegetable proteins there.

The survey is a cooperative project of the Soybean Council of America and FAS. The men who will make the trip:

Geo. M. Strayer, executive director of the Soybean Council, Hudson, Iowa, and

E. M. Deck, director of product development, Anderson, Clayton & Co. foods division, Dallas, Tex., representing the Council.

And V. M. Hougen, marketing specialist for the fats and oils division of FAS, Washington, D. C.

The team will depart about Oct. 17 and return to this country about Dec. 10. They will visit Hong Kong, Singapore, Malaya, Burma, India and Pakistan to study the possibility of expanding the market for fats and proteins in these countries. Studies will include the food usages of soybeans, current and potential uses for soybean oil and cottonseed oil in the countries visited, the possibility of finding markets for vegetable proteins, and the comparative position of the United States in the countries visited.

They will visit trade, government and international organization officials, oilseed and edible oil processing plants, food processors, feed mixing plants and livestock feeding projects.

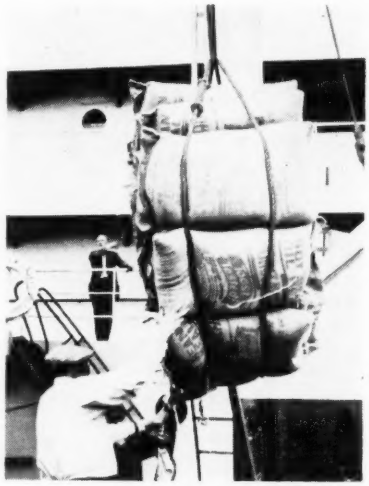
Particular attention will be directed to the possibilities for the increased usage of soybeans and soybean products in the Far East.

Generally speaking, neither the people nor the livestock in the Far East have had a satisfactory diet. It is generally deficient in fats and protein. But the economies of these countries are developing and the average per capita income is increasing, making it possible for the people to eat better and enjoy a higher standard of living.

Although the area as a whole is a net exporter of fats and oils, in some recent years some of these countries have been net importers of fats, oils and oilseeds. It is anticipated that this will be the case more and more in the future.

The team will plan and perhaps take part in trade fair exhibits while in India.

They will stop off briefly in Japan to observe market development work being undertaken there by the American Soybean Association. And on the return trip to the United States they will stop in Italy and Spain to observe the Soybean Council's market development projects in those countries.



HONEYMEAD Products Co. soybean meal arrives in Barcelona.

PREPARING the cooperative agreement for the promotion of U. S. soybeans and soybean products between the Association of German Oil Millers and the Soybean Council of America. Seated (l. to r.) Dr. Fred Marti, European manager, Soybean Council of America; Dr. F. Schraud, chairman of the sales promotion committee, Association of German Oil Millers; and Dr. K. Schnurre, executive secretary for the Oil Millers. Standing: A. J. Rehling, Assistant Agricultural Attache, and Phil S. Eckert, Agricultural Attache, Bonn.

U. S. Soybean Oil Meal, Flour Tested in Europe

RECENT SHIPMENTS of soybean oil meal and soy flour to several European countries by the Soybean Council of America are being used to demonstrate the value of these products in livestock feeding and human nutrition. The meal and flour were donated by U. S. soybean processors and soy flour manufacturers.

The front cover picture shows a shipment of 4,000 pounds of defatted soy flour on arrival in Genoa, Italy, for transshipment to Rome and Vienna, Austria. The flour is being used in research work in the use of soy flour in pasta (macaroni and similar products) and baked goods in Italy and Austria. The experiments are being conducted by the

SOYBEAN COUNCIL OF AMERICA, INC.

Italian Institute of Nutrition at Rome and Jakober & Cie, Wien, Austria.

Earlier, a 25-ton shipment of soybean oil meal was donated to the Council by Honeymead Products Co., Mankato, Minn., and shipped to Barcelona, Spain, where the meal is being used to demonstrate its value in livestock feeding.

A 10-ton shipment of soybean oil meal is also going to Greece for tests in livestock feeding. Contributors were Central Soya Co., Inc., Fort Wayne, Ind.; Glidden Co., Chicago, Ill.; and Lauhoff Soya Co., Danville, Ill.

Edward M. James, Swarthmore, Pa., technical consultant to the Council, will return to Turkey Oct. 19 on the request of the agricultural attache there.

Dr. James will follow up on his trip to Turkey of last March. He is working with Turkish people in the proper utilization of recent shipments of U. S. soybean oil in their products.

Later he will conduct two oil seminars in Spain, one in south Spain at Seville, the other in the Barcelona area in northern Spain.

JAPANESE-AMERICAN SOYBEAN INSTITUTE

Ceremony Inaugurates Kitchen Cars

By SHIZUKA HAYASHI

Managing Director, Japanese American Soybean Institute, Nikkatsu International Bldg., No. 1, 1-Chome Yurakucho, Chiyoda-Ku, Tokyo, Japan.

FOR ABOUT 5 months there have been talks and reported plans by government circles to import a quantity of soybean oil meal from Soviet Russia into Japan. With the complete deadlock of trade between Japan and Red China, there was evidently an effort made in that direction by some of the firms engaged primarily in the trade between Japan and Red China. These firms had previously entered into contract with Red China authorities for 265,000 tons of soybeans, of which 27,000 tons were executed. The balance was withheld or cancelled due to the break in China-Japan trade.

A plan was developed to import soybean oil meal from Russia. Its negotiation has been in progress between the Soviet authorities and Japanese importers since May. Japanese trade groups, especially the processors, are absolutely against this plan and they have been strenuously fighting the import of soybean meal. Their opposition was quite strongly supported by the Food Agency of the Ministry of Agriculture. The Ministry of International Trade and Industry (MITI) has been in favor of importing the meal from Russia, their reported reason being to balance the trade between Russia and Japan by increasing imports from Russia.

After months of discussion, the Ministry of Agriculture has finally agreed with MITI to import 25,000 tons of Soviet meal on condition that no further meal will be imported. This 25,000 tons is to be the only exception.

Under date of Sept. 12 an official announcement was made by MITI to allow the import of 25,000 tons for shipment during September-December from the Port of Nakhodka on the basis of $75 per metric ton, C & F Japan. Import funds will be allocated to seven different cooperatives with the understanding that the 25,000 tons of soybean meal will not be sold other than for feeding purposes.

PICNIC lunch with use of soybean oil—a Japanese dish. Fried young horse mackerel and young turnip in sweet vinegar, butterbur wrapped with egg, vegetables and whale meat cooked sweetly with oil. One of the winners in the soybean oil cooking contest.

Kitchen Cars

Starting in May of this year, cooking demonstrations by kitchen cars have been carried out under a joint contract between the Oregon Wheat League and the American Soybean Association. The contract provides that the kitchen car demonstrations include recipes to cover at least one product made from wheat and one soybean product, like soybean oil, miso, tofu, natto or kinako.

KITCHEN car demonstrates cooking of soybean and wheat products to Japanese housewives.

Twelve cars are presently touring Japan.

The entire fleet of 12 kitchen cars with the exception of one still conducting demonstrations on Hokkaido was gathered in Tokyo in the plaza in Hibiya Park for display to interested groups and the public. A grand ceremony was held on Aug. 11 celebrating the project. Among the dignitaries attending the ceremony were the Canadian Ambassador, Minister Thibodeaux, U. S. Agricultural Attache W. D. Termohlen, the Mayor of Tokyo, various Japanese ministers and others.

After the ceremony a few cooking demonstrations were conducted. Then the kitchen cars were assigned to the different prefectures and started out on their respective journeys.

Meeting with Paarlberg

A meeting between Assistant Agriculture Secretary Don Paarlberg and representatives of the Japanese organizations responsible for market development work in connection with cotton, tobacco, wheat, inedible tallow and soybeans was held on Sept. 15.

Reports on the current market development projects in the five commodities were made to acquaint the Assistant Secretary with their progress. He showed keen interest in the various programs and expressed his determination to take care of Japanese requirements at competitive prices and services. He assured his listeners that efforts will be made to supply Japan with the type of soybeans consumers want.

CROP REPORT

Another Boost in 1958 Crop Estimate

THE U. S. DEPARTMENT of Agriculture gave another big boost to its soybean crop estimate Sept. 10 when it forecast a U. S. crop of 560,776,000 bushels, an increase of nearly 25 million bushels above its Aug. 1 estimate and 80 million bushels above the record crop of 1957.

USDA stated a per-acre yield of 24 bushels is indicated. This is nearly a bushel above last year's record.

By late September some combining had been done in most northern states, and there had been some harvest of early varieties in the Midsouth, but a general harvest movement was still waiting on favorable harvest weather many places. A substantial part of the crop had been harvested in Illinois and Missouri.

Reports of heavier than normal weed infestations were widespread.

Reports by our correspondents:

Arkansas. Jake Hartz, Jr., Jacob Hartz Seed Co., Stuttgart (9-22): Heavy podding on early and mid-season varieties. July plantings not as heavy but 5 to 6 bushels less than earlier plantings. Excessive rains this week. Need dry weather. No soybeans harvested. No special problems in combining with the exception heavy growth has caused some lodging. Cotton area has more weeds than last year. Some uneven maturity in northeast part of state due to uneven stands in spring. A sizable quantity will be stored in this area.

California. George H. Abel, research agronomist, Southwestern Irrigation Field Station, Brawley: Acreage planted to soybeans has declined due to unfavorable ratio of production costs and profits. USDA has a large soybean breeding program aimed to develop higher yielding lines. The results are beginning to show promise.

Illinois. A. M. Convis, Funk Bros. Seed Co., Bloomington (9-23): Harvest started Sept. 22, running pretty good pace as long as weather holds good. Weeds can be problem although farmers have had plenty of warning about setting their combines. Quality good, moisture 12.5% to 13%, f. m. about same as last year.

Indiana. Ersel Walley, Fort Wayne (9-22): Crop movement will begin around Sept. 29. With good weather will not last long. Weeds are in rows. Rank growth due to abundant moisture. Present problem until frost. As leaves drop, estimate of yield is also dropped by most growers.

Kansas. B. E. Henline, Soy-Rich Products, Inc., Wichita: (9-22) Excessive rainfall holding up maturity and combining. Large movement in south central Kansas will be Sept. 25 through Oct. 15. Soybeans harvested yield 20 to 25 bushels, good quality, moisture 14% to 15%, less than 2% f. m. Yields higher than USDA report for Kansas.

Missouri. J. Ross Fleetwood, University of Missouri, Columbia (9-23): On whole crop in excellent condition, 30% combined. Beans ranker than normal and more weeds than usual. Most reports indicate good yields, small size but good quality beans. Diseases have damaged some fields. Flood losses may have been higher than reported to date.

O. H. Acom, Wardell (9-22): Plenty of rain. Some fields weedy. Some Dormans yielded 25 to 28 bushels.

Edward Tillman, Hayti (9-20): Our yield should be as good as we have ever had. Very last few days in September should see beginning of movement. Some soybeans pretty weedy.

Ohio. G. G. McIlroy, Irwin (9-23): Weather still wet. Will need drying weather for harvest. Weeds bad and lots of fields lodged badly. Yield slightly less than government report in this section. 80% of crop will go into storage.

Louis Brewster, General Mills, Inc., Rossford (9-22): Except for overabundance of weeds, crop is in very good condition. I believe weeds will be biggest problem in combining this year's crop. Reports I have heard so far indicate farmers are cleaning their beans well because f. m. content low.

Tennessee. Tyler Terrett, West Tennessee Soybean Mill, Inc., Tiptonville (9-22): Maturity about 2 weeks late. Condition good but problems will be weeds and uneven maturity.

Texas. Jack G. King, assistant agronomist, Texas Agricultural Experiment Station, Lubbock: Farmers are doing a better job of production this year than last. Yields apparently will be higher than originally anticipated. Generally growers are encouraged by performance of cotton on land in soybeans last year. If sorghum support prices are lowered in 1959, then soybean acreage will expand rapidly. Limited breeding work has now been initiated at the Lubbock Experiment Station. Harvesting should begin during second week of October. Fields are clean, uniform in maturity and harvesting should be easy. Yields will be approximately 25 bushels per acre, with a total estimated production of 1½ million bushels, three times larger than 1957.

SOYBEANS FOR BEANS (SEPTEMBER, 1958) CROP REPORTING BOARD, AMS, USDA

State	Yield per acre 1957 Bushels	Yield per acre Indicated 1958 Bushels	Production 1957 1,000 Bushels	Production Indicated 1958 1,000 Bushels
N. Y.	18.0	16.0	108	80
N. J.	14.0	24.0	616	1,032
Pa.	13.0	21.0	221	336
Ohio	23.0	24.5	32,683	35,942
Ind.	24.5	26.0	52,994	59,540
Ill.	25.5	27.5	126,837	142,588
Mich.	22.0	23.0	5,192	6,325
Wis.	17.0	15.0	1,717	1,785
Minn.	21.5	19.0	54,804	58,444
Iowa	26.0	27.0	72,592	82,026
Mo.	21.5	23.0	35,196	45,425
N. Dak.	18.5	15.0	3,404	3,975
S. Dak.	16.5	11.0	3,069	2,783
Nebr.	27.0	30.0	3,699	5,820
Kans.	11.5	21.0	2,461	6,909
Del.	17.5	22.0	2,572	3,564
Md.	18.5	23.0	3,496	4,324
Va.	20.0	22.0	4,960	5,918
N. C.	21.0	22.0	8,736	9,064
S. C.	15.5	17.0	5,100	6,035
Ga.	14.0	16.0	1,400	1,760
Fla.	23.0	24.0	1,035	1,104
Ky.	20.5	22.0	2,665	3,080
Tenn.	22.5	23.0	4,208	5,359
Ala.	20.0	21.0	2,440	2,688
Miss.	19.0	21.0	11,685	15,498
Ark.	23.5	24.0	32,500	44,760
La.	21.0	23.0	2,499	2,760
Okla.	17.0	22.0	510	924
Texas	26.0	32.0	442	928
U. S.	23.1	24.0	479,841	560,776

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Scott Soybean Variety To Be Released in 1959

A NEW, HIGH-YIELDING, early-maturing, yellow soybean variety will be made available to farmers in southeast Missouri next year by the Missouri Agricultural Experiment Station, according to Emmett L. Pinnell, chairman of the University of Missouri's field crops department.

Scott, the new variety, was developed through a breeding project conducted by L. F. Williams, U. S. Department of Agriculture plant breeder and research associate at the University, and Arnold Matson, University field crops specialist, at the Southeast Missouri Research Center near Sikeston.

Certified seed of the new variety is being produced this year by Missouri Seed Improvement Association growers and the increase will be available to producers next year as seed.

The variety is resistant to the soybean diseases of bacterial pustule and wildfire, has good lodging resistance, and is satisfactory for oil content and other agronomic characteristics, Plant Breeder Williams says.

Over a 5-year period in southeast Missouri work, the Scott soybean outyielded the Clark, Perry, and S-100 varieties currently grown on large acreages in the state's bootheel area. It's expected that the Scott will largely be used in southeast Missouri where it will replace present acreages of Perry and S-100 and probably part of the acreage devoted to Dorman and Clark varieties.

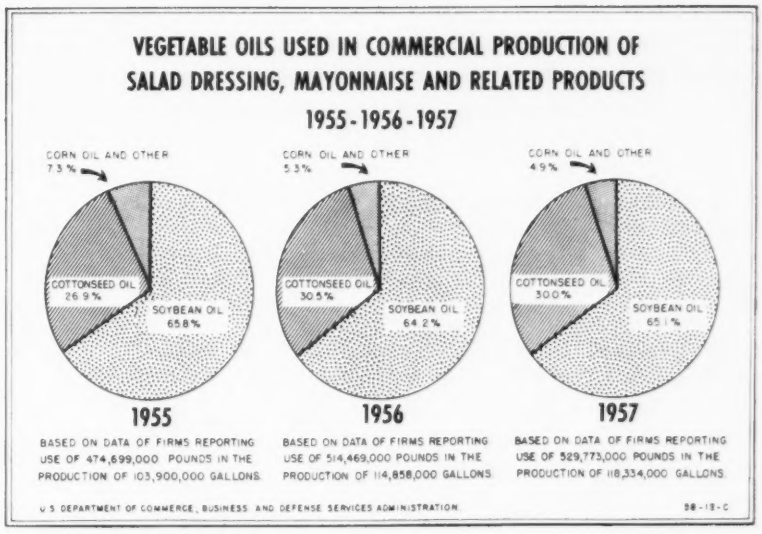
It's considered too late in maturity for central Missouri, Williams notes. And, even though it is Clark's equal for yield in central Missouri, it isn't expected that Scott will replace Clark in the mid-state area.

Margarine Production May Set New Record

MARGARINE production in the United States this year may establish a new record of 1,550 million pounds, or even higher, Kenneth M. Hart, chairman of the board of directors of the National Association of Margarine Manufacturers, has declared.

This would represent a 6% increase over the 1957 U. S. margarine production of 1,461 million pounds, the highest on record.

During the past marketing year, (April 1957-March 1958), U. S. householders purchased more than 3 pounds of margarine for every 2 pounds of butter.


VEGETABLE OILS USED IN COMMERCIAL PRODUCTION OF
SALAD DRESSING, MAYONNAISE AND RELATED PRODUCTS
1955-1956-1957
CORN OIL AND OTHER 7.3%
COTTONSEED OIL 26.9%
SOYBEAN OIL 65.8%
1955
BASED ON DATA OF FIRMS REPORTING USE OF 474,699,000 POUNDS IN THE PRODUCTION OF 103,900,000 GALLONS.
CORN OIL AND OTHER 5.3%
COTTONSEED OIL 30.5%
SOYBEAN OIL 64.2%
1956
BASED ON DATA OF FIRMS REPORTING USE OF 514,469,000 POUNDS IN THE PRODUCTION OF 114,858,000 GALLONS.
CORN OIL AND OTHER 4.9%
COTTONSEED OIL 30.0%
SOYBEAN OIL 65.1%
1957
BASED ON DATA OF FIRMS REPORTING USE OF 529,773,000 POUNDS IN THE PRODUCTION OF 118,334,000 GALLONS.
U.S. DEPARTMENT OF COMMERCE, BUSINESS AND DEFENSE SERVICES ADMINISTRATION
58-19-C

Two-Thirds Dressing Oils Are Soybean Oil

BASED on 129 firms reporting consumption of oil in 1957, soybean oil accounted for two-thirds of the oil used in the manufacture of salad dressing, mayonnaise, and related products, according to the U. S. Department of Commerce.

Use of soybean oil in these products increased to 345 million pounds in 1957 from 330 million pounds in 1956. Soybean oil consumption increased to 65.1% in 1957 from 64.2% in 1956.

The 77 firms using soybean oil accounted for over 93% of all oil used and over 93% of gallonage sales of salad dressing, mayonnaise and related products.

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Central Soya Co. Elects Westley Vice President

The board of directors of **Central Soya Co., Inc.,** has elected Richard O. Westley as vice president of the company, effective Sept. 1.

As vice president he will continue his responsibilities as general manager of the chemurgy division of Central Soya Co. with offices at 1825 North Laramie Ave. in Chicago.

R. O. Westley

Until 1955, he was associated with Cargill, Inc., in a wide degree of managerial capacities in grain merchandising. He joined the Glidden Co.'s chemurgy division in 1955, was named manager of commodity operations in 1955, and vice president and general manager of the chemurgy division in 1957.

Central Soya Co.'s purchase of Glidden's chemurgy division was announced in July.

The northern sales division of **McMillen Feed Mills,** feed sales division of Central Soya Co., Inc., Fort Wayne, Ind., was realigned Sept. 1 to make an eastern and western sales division. The new western sales division, comprising Illinois, Wisconsin, Missouri, Iowa and other areas under development west of the Mississippi, will be managed by E. P. "Al" Kovats, who has been sales manager of the northern sales division. The new eastern sales division, made up of Indiana, Michigan, Ohio and the states currently in the eastern sales district, will be managed by L. H. "Lee" Higgins, who has been sales manager of the company's west central (Indiana) sales district.

McMillen Feed Mills has also announced four district sales manager appointments, effective Sept. 1.

Fred Wolter, sales manager of the Michigan district, became sales manager of the Indiana district. Harold Meservey, who has been on special sales staff assignments, became sales manager of the Michigan district. Glenn Warren, sales manager of the Wisconsin district, became sales manager of the newly created Iowa district. Garold Babcoke, a territory manager in central Indiana, became sales manager of the Wisconsin district.

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Swift & Co. Announces Changes at Fostoria

F. E. Doll

Elmer H. Eubanks

The appointment of Elmer H. Eubanks as superintendent of the **Swift & Co.** soybean mill at Fostoria, Ohio, has been announced by J. L. Fike, the company's general superintendent. Appointment was effective Sept. 1.

Mr. Eubanks succeeds F. E. Doll, who transfers to the company's general office in Chicago on special assignment.

The new superintendent, who joined Swift 23 years ago, has been superintendent of plants at Portageville, Mo., Blytheville, Ark., and since 1931 at Cairo, Ill.

Mr. Doll joined Swift in 1940 at the Fostoria plant, and has served as superintendent for the past 13 years.

General Mills Announces A New Soy Oil Product

General Mills will start production of epoxidized soybean oil in new facilities at Minneapolis this fall, it was announced.

The announcement was made jointly by Sewall D. Andrews, vice president and general manager of the oilseeds division, and Dr. R. H. Manley, managing director of the company's central research laboratories.

General Mills' research chemists have developed a process for epoxidizing unsaturated vegetable oils and fatty esters, Andrews said.

Epoxidized soybean oil is used extensively as a plasticizing stabilizer for polyvinyl chloride resins. General Mills holds the basic patents for this use, Andrews said.

The productive capacity of the new unit was not revealed. Andrews indicated, however, that initial production would be conducted in an interim unit for which provision has been made in the plans to permit expansion to meet market demands.

"During initial operation, the company plans to market the regular grades of epoxidized soybean oil which are now being used," Andrews said. He added, "This is another of a series of specialty products which General Mills plans to offer to the plastics industry."

American Mineral Spirits Opens Kansas City Office

The opening of an **American Mineral Spirits Co.** sales office at 155 East Armour Boulevard, Kansas City, Mo., was announced by Karl F. Giloth, Midwest sales manager.

Williard C. Stuhlfaut has been appointed manager of Amsco's new Kansas City office. This follows the opening of a new sales office and storage terminal in the Twin Cities in recent months.

Willard C. Stuhlfaut

Bill Stuhlfaut, assisted by Timothy P. Macres, will be responsible for the sale of Amsco's complete line of technical naphthas and petroleum solvents in the territory of Colorado, Kansas, Nebraska, Oklahoma, Texas and part of Illinois, Iowa and Missouri.

Swift Drops Cottonseed Crushing at Cairo, Ill.

For the first time in almost 70 years the **Swift & Co.** oil mill at Cairo, Ill., will not crush cottonseed, according to a newspaper report. So far as it can be determined it will be the first time since 1890 that no cottonseed has been crushed in Cairo, and it is possible the date could be pushed back another 10 years.

This is the result of reduced cotton acreage and the operation of the soil bank program, according to W. B. Stone, who has been Cairo Swift head.

The cottonseed crushing operations of Swift's Cairo, Ill., and Portageville, Mo., mills have been consolidated, with cottonseed operations concentrated at Portageville. The Cairo mill will continue to handle soybeans.

Mr. Stone has been appointed manager of the Swift & Co. mill at Portageville, and will divide his time between the two mills. He will be assisted at Portageville by A. C. Dacres.

Pillsbury Makes Change in Name

Pillsbury dropped the "Mills" from its name and became the Pillsbury Co. Stockholders at the company annual meeting in Minneapolis approved the name change.

"The word 'Mills' is restrictive," stockholders were told. "Under our new name we can become a company producing and marketing numerous products within and without the food industry, for both industrial and consumer markets."

The 30th annual convention of the **Grain Elevator and Processing Superintendents** will be held at the Multnomah Hotel, Portland, Ore., Apr. 12-17, 1959, announces Kenneth C. Mecklem, Cargill Inc., Portland, president.

W. B. (Bill) Jennings has joined **Pidgeon-Thomas Iron Co.**, Memphis, Tenn., as assistant director of sales. He was formerly vice president and sales manager of the Riechman-Crosby Co., Memphis, now known as Riechman Crosby Hays Co.

Construction in the near future of a 100-ton-daily manufacturing plant for complete animal feeds in connection with the Cargill grain elevator at Lennox, S. Dak., is announced by Nutrena Mills, Inc., feed subsidiary of **Cargill, Inc.**

The seed branch, grain division, Agricultural Marketing Service, U.S. Department of Agriculture, announces a federal seed school to be held at the State Seed Laboratory, Georgia Department of Agriculture, Agriculture Bldg., 19 Hunter St., S. W., Atlanta 3, Ga., Oct. 27-Nov. 7. Persons desiring to attend should contact E. E. Winstead at the above address. Only experienced analysts can be accommodated.

Thomas Barker has been appointed assistant Midwest sales manager of **American Mineral Spirits Co.** He will maintain headquarters in Amsco's Chicago office. He has been manager of Amsco special products sales since the middle of 1956.

William M. Berger, branch manager of the Chattanooga, Tenn., office of **Cargill, Inc.**, has been named a merchant of the year by the company's nationwide grain division. He was cited for his handling of both grain and soybean meal sales in Tennessee and in the Tennessee River valley.

Truck Dumper

Rail-car Dumper

Marine Leg and Pneumatic Barge Unloader

New Orleans Elevator handled 47,404,248 bushels of soybeans in year ending June 30, 1958

—modern equipment, huge capacity expedite Mid-Continent cargoes

The Public Grain Elevator at the Port of New Orleans moved a record volume of soybeans during the fiscal year ending June 30, 1958. Here is an unsurpassed facility for rapid, efficient handling of soybean shipments. It renders to the grain trade one of the most valuable services offered by any port. Modern installations include two large marine legs for unloading barges, supplemented by a pneumatic unloader, two rail-car dumpers and a truck dumper—all designed for more rapid grain unloadings and with consequent savings in time and money.

For full facts write:
Robert H. Jordan, Manager, Public Grain Elevator, Board of Commissioners of the Port of New Orleans, Post Office Station B, New Orleans, U.S.A.
or Telephone: TWinbrook 7-2321 or JAckson 2-2551

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PORT OF NEW ORLEANS U.S.A.

New way to build country houses...

BUTLER SQUARE BOLTED STEEL TANKS

Now—the protection of all-steel storage and the economies of pre-fabrication are here for country houses. Butler Square Tanks let you build a traditionally-shaped structure entirely of steel at a cost competitive with other construction. You get country-house compactness and convenience that permits economical gravity flow from storage bins to dump pit PLUS these extra advantages of steel construction:

STEEL PROTECTION—Butler all-steel construction seals out weather, rodents and insects—gives you a fire-safe structure that qualifies for lower insurance rates. Butler Steel Square Tanks won't absorb or transmit moisture through walls. They reflect heat and dissipate it faster from grain stored inside. With Butler's specially designed corrugated sidewalls and girt stiffeners, you get the strength and dependability of steel in a tank that can withstand the tremendous side pressure of grain.

STEEL ECONOMY—Tank surfaces are easy to maintain, easy to clean. Fumigation is easier, costs less. Fast, on-site assembly of factory-fabricated parts cuts construction costs, gives you a new country house weeks sooner than other construction.

SPECIAL FEATURES OF BUTLER'S SQUARE SHAPE

Maximum capacity on straight-sided lots and confined areas. Tanks fit flush against one another—there's no space lost between tanks.

Future expansion is easier, less expensive. To add a tank, you need build only three more walls and attach them to an existing tank. You save time, materials and money.

Tanks are 8-ft. square and are available in heights to 58 ft. above hopper. Capacities to 2,944 bu. per tank.

Your nearest Butler Contractor is listed on the opposite page. For the important details, write, or phone collect to the address listed below.

BUTLER STEEL PRODUCTS

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Manufacturers of Farm Equipment • Buildings • Oil Equipment • Dry Cleaners Equipment • Outdoor Advertising Equipment • Custom Fabrication

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PUBLICATIONS

12 States Now Make, Sell Mellorine

FROZEN desserts made with fats other than milk fat are commonly known as mellorine. They have been made and sold in 12 states beginning at various dates during the past decade.

Mellorine production in 1956 totaled 33 million pounds, compared to 651 million for ice cream. Production of mellorine in recent years has been increasing at a slower rate than in the beginning. This suggests that further large percentage increases in mellorine sales are unlikely in the markets where it is now sold.

Small plants often were the first in their areas to begin making mellorine. Larger plants apparently delayed entry into production until there was evidence that the product could be made successfully and that there was an effective demand.

The low price at which mellorine can be sold in comparison with ice cream is an important factor in its growth. Not only is mellorine lower in price because less costly fats are used but gross margins of many manufacturers and retailers are lower than on ice cream.

The price structure appears to be influenced as strongly by competitive factors as by costs. A reflection of this is seen in the emphasis on price as the leading feature in advertising of the product. Also, the marketing outlets most emphasized are chain stores and independent supermarkets. Here price competition is frequently intense, and the large volume of sales makes for lower marketing costs.

Production and Marketing Practices for Mellorine. A study of the Marketing of Frozen Desserts. Marketing Research Report No. 212, Agricultural Marketing Service, U. S. Department of Agriculture, Washington, D. C.

High Fat Prices Mean More World Competition

MAINTENANCE of fats and oils prices at an artificially high level is certain in the long run to result in expanded production of fats and oils in other countries and to bring them into world markets to compete with U. S. soybean oil, says Eric Berg, assistant professor of agritural economics, University of Illinois.

The United States now supplies about one-third of total world exports of fats and oils—more than double the exports of any other country—and is able to affect the price by controlling exports.

And higher prices for fats and oils can be expected to encourage development of native perennial groves of oil bearing trees in Asia, Africa, and South America.

Berg says there are enough babassu trees in one Brazilian state alone to produce 150 billion pounds of babassu oil annually if harvested. This is more than double the present world production of all edible-soap fats and oils!

Countries where the groves are located are short of capital and their fats and oils industries are undeveloped. But maintenance of fats and oils prices at artificially high levels will encourage development of groves such as palm and babassu and bring their oils eventually into foreign markets to compete with U. S. soybean oil. Berg points out that once such groves have been developed, production from them likely will continue as long as the trees are bearing, which is generally for several decades.

Berg says that the greatest opportunity for large expansion in U. S. exports of soybean oil lies in low-income countries. "The price must, however, be low enough to permit consumers in these countries to buy more fats and oils and oil-bearing materials, such as oilseeds, milk, etc., for use as food."

Estimated World Production of Fats and Oils, Prewar Average and Annually, 1946-56 with Special Reference to Some Factors Affecting the Demand for United States Soybean Oil in International Markets. July 1958. Eric Berg, Assistant Professor of Agricultural Economics, University of Illinois, Urbana, Ill.

Miscellaneous

Biological Studies of the Soybean Cyst Nematode. By C. B. Skotland, Phytopathology. Vol. 47, No. 10, pages 623-625.

Variation in Pathogenicity of Diaporthe Phaseolorum Var. Sojae to Soybean. By John Dunleavy. Iowa State College Journal of Science, Aug. 15, 1957. Vol. 32, No. 1, pages 105-109.

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John W. Williamson & Sons, Inc.
666 W. Putnam Drive, WHITTIER
Woodland Mill Supply Co.
Davis Highway, P.O. Box 426, WOODLAND
COLORADO
Hi-Plains Steel Structures, Inc.
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Madron Mfg. Company, 5100 Race St., DENVER
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O. A. Newton & Son Co., BRIDGEVILLE
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Gulf States Construction, Inc.
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Mill & Elevator Co.
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TENNESSEE
W. J. Savage Co., Flour & Feed Mill Div., KNOXVILLE
TEXAS
Panhandle Steel Buildings, Inc.
1001 N.E. 5th Ave., AMARILLO
E. O. Ross, Inc., 1903 N. Lexington, CORPUS CHRISTI
Briggs Weaver Machinery Co., 5000 Hines Blvd., DALLAS
H. E. Wright & Co., Box 1426, TEXARKANA
Wallace Sales & Eng. Co., P.O. Box 899, WICHITA FALLS
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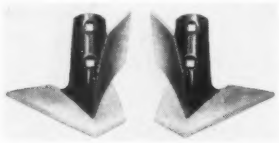
BUTLER MANUFACTURING COMPANY

NEW PRODUCTS and SERVICES

CULTIVATOR SWEEEPS. Soybean yields are being boosted by shallow cultivation with the new row sweeps made by Lantz Manufacturing Co.

For years farmers have known that deep cultivation destroys root growth. The problem has been one of getting effective weed control and shallow cultivation at the same time.

The exclusive blade deflector action gives soil movement control impossible with conventional sweeps. Faster cultivation is thus possible. The patented sweep deflector throws a fine, even flow of soil at fast or slow tractor speeds. Small crop plants are not covered. For faster speeds the sweeps can be set farther from the row to prevent plant lifting and root damage.



The new sweeps are also perfect for last cultivation. They're for use on any crop or cultivator. Easily adjusted for tractor speed or crop size.

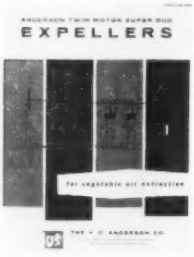
For further information write Soybean Digest 10h, Hudson, Iowa.

LEVEL INDICATOR. A consolidated catalog is available for all three Bin-Dicators made by the Bin-Dicator Co. for all bulk material, level indication and control.

The catalog includes photographs, cutaway and schematic drawings, outline dimensions, general specifications, special bin and conveyor applications, actual and suggested systems and applications for the Bin-Dicator, the diaphragm type bin level indicator; Roto-Bin-Dicator, rotating paddle type bin level indicator; Bin-Flo Aerator, to promote flow of dry, finely ground bulk materials.

For further information write Soybean Digest 10g, Hudson, Iowa.

EXPELLERS. A useful 12-page catalog has been published recently by V. D. Anderson Co., describing its complete line of Anderson Twin Motor Super Duo Expellers. The catalog is recommended reading for everyone engaged in vegetable oil milling, as it describes the newest mechanical equipment available for vegetable oil extraction and the advantages of each type.



In all, four models of Twin Motor Super Duo Expellers are cataloged. The Anderson screening tank and group oil cooling system which results in economies in oil cooling are also described.

For your complimentary copy of Catalog 458, write Soybean Digest 10c, Hudson, Iowa.

TEMPERATURE INDICATOR. A new color brochure describing the modern method of avoiding loses in the storage of soybeans and other perishables through the use of its electronic temperature indicating equipment has just been published by PTC Cable Co.

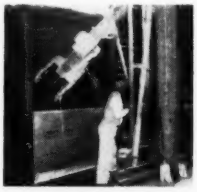
PTC's electronic equipment utilizes a thermo-couple cable. Now PTC announces a new development in a still stronger cable, "Springkore," which is specially adapted to tall bins.

The newest in electronic reading instruments—companion equipment to the cables—is also described.

For further information write Soybean Digest 10a, Hudson, Iowa.

BOXCAR UNLOADER. An unusual application of a 16-inch "Hi-Type" Swiveloader developed for the Honeymead Products Co. was announced by Stephens-Adamson Mfg. Co.

The installation is unusual in that the Swiveloader moves along a 200-foot loading dock to load boxcars, compared with a normal application, where the Swiveloader is anchored at a stationary point and the boxcars are brought to the unit for loading.



This installation features the Swiveloader mounted on a special frame, running on two rails, one along the loading dock, the other attached overhead to a supporting steel framework.

The firm states that this application opens up a new era of development for fast, convenient and economical loading installations.

For further information write Soybean Digest 10f, Hudson, Iowa.

PORTABLE DRIER. Daycom, Inc., manufacturer of Arid-Aire driers, has sold a new trailer mounted unit to Rickel, Inc., Kansas City. Said to be the first large capacity grain drier ever made which is entirely portable, this Arid-Aire is easily transported and is ready for use in minutes.

The entire unit is built on a semi-trailer. For a company with several elevators this unit is very practical since it can offer a grain drying service on different days in different areas. The unit can also be used for custom drying and put in operation in the field at the site of the harvest.

The unit operates on LP gas, natural gas or oil.

For further information write Soybean Digest 10d, Hudson, Iowa.

AERATION SYSTEM. A new do-it-yourself aeration system for small grain storage bins has been announced by Rolfes Grain Aeration Companies.

The new Powerator specifically designed for bins from 3,300 to 10,000 bushels including metal bins as well as houses with crib annexes and small wooden houses uses the same engineering principle as the large Rolfes systems.

The engineering is built in and the design is so simple and efficient that grain storage operators can make the entire installation by themselves.

For further information write Soybean Digest 10e, Hudson, Iowa.

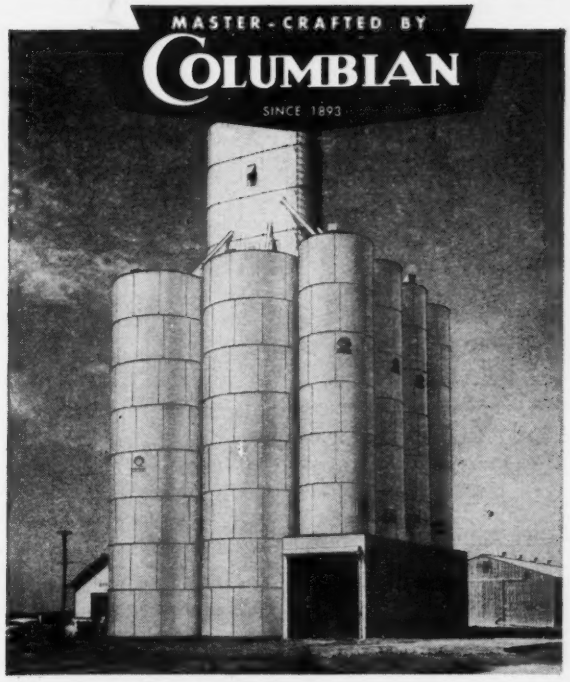
SOLVENTS. A new guide entitled, "Amsco Solvents," has been published by American Mineral Spirits Co. This attractive eight-page booklet presents Amsco's complete line of petroleum solvents in chart form with specifications showing the relative time of evaporation. This facilitates selection of the proper solvent on the part of the buyer or technician.

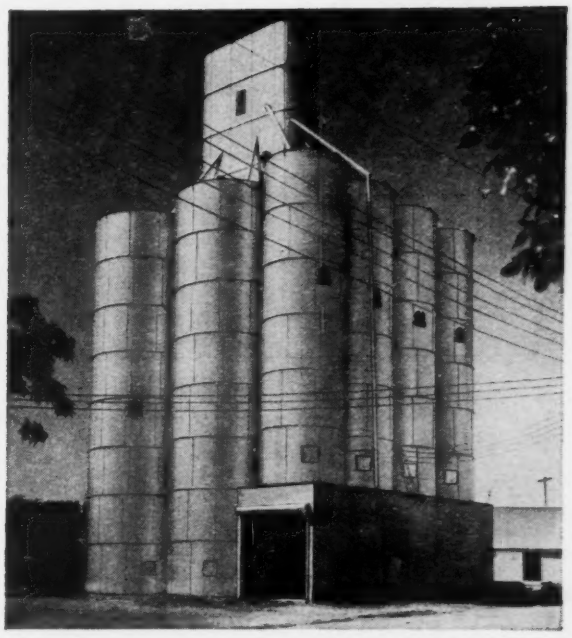
Copies may be obtained by writing Soybean Digest 10b, Hudson, Iowa.

YOU Are NOT Seeing Double!

Both These Modern Grain Plants in Byron, Nebraska are

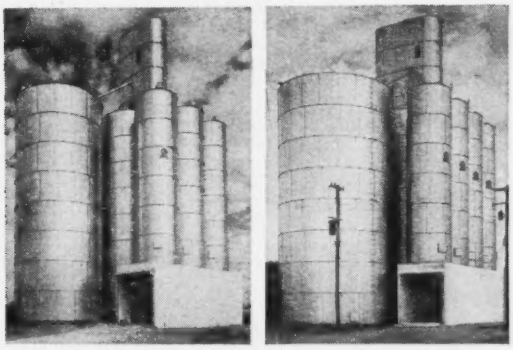
BOLTED STEEL ELEVATORS





Almost identical are these two modern 96 ft. high Columbian Steel Elevators built by Jones Construction Co. of Grant, Neb. for Byron Grain Co. and Byron Co-operative Elevator. Each is 75,000 bu. capacity, each has four blending and classifying tanks over a drive-through loading and unloading dock. Grain is dumped into a pit under the dock, moved fast to storage tanks. Legs are large for fast handling of grain. The basic design makes a very flexible house.

DOUBLE PROOF that Columbian "Look Ahead" Elevators give you *extra Dollar Capacity* with Faster Grain Handling . . . Classifying and Blending facilities . . . Low Cost Expansion!



Two more examples of Columbian "Look Ahead" Elevators. *Left*, Burlington Elevator, provides 115,000 bu. capacity, at Hebron, Nebr.; *Right*, Riverdale Grain Co. elevator was built for 64,000 bu. in 1956, expanded to 107,000 bu. capacity in 1957. Both were built by Jones Construction Co., Grant, Nebr.

Throughout the Grain Belt, as in little Byron, Nebr., you'll find this same practical and efficient basic design of Columbian bolted steel elevators. It is duplicated over and over again. In large or small capacities, it includes both storage and blending and classifying tanks arranged for fast handling of grain. It offers maximum service to elevator customers, provides extra "dollar capacity" for the elevator operator, keeps him ahead of competition. Easily expandable, too—an important feature because a modern plant does bring in increased business. Low in first cost, this basic Columbian elevator is economical in use, as it is virtually a one-man operation

You can gain by the proved experience of Columbian contractors and engineers. Let them help plan *your* new elevator or expansion and modernization of your present facilities. **Write for free Columbian Grain Tank folder.** It shows you why Columbian engineering, design and construction can do more for you, for less.

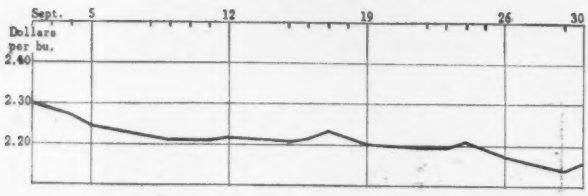
COLUMBIAN STEEL TANK CO.

P. O. Box 4048-U **Kansas City, Mo.**

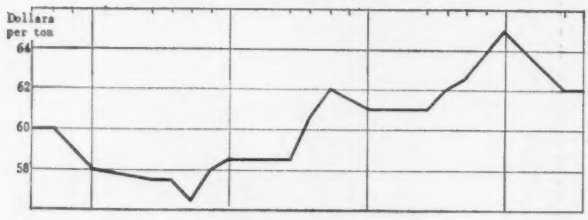
Associate member, Grain & Feed Dealers National Association • Member, American Dehydrators Association

STEEL, Master-Crafted by Columbian . . . First for Lasting Strength

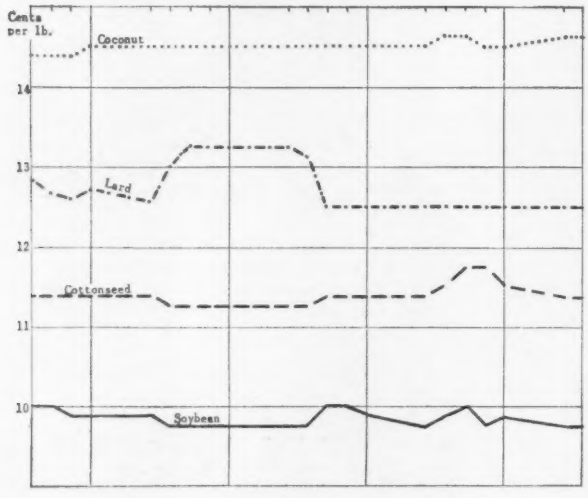
DAILY MARKET PRICES
No. 1 Cash Soybeans, Chicago



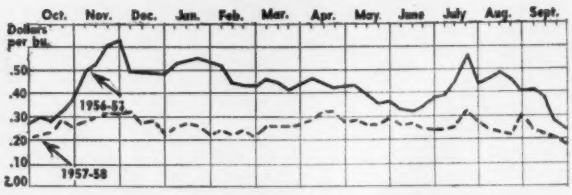
Bulk Soybean Oil Meal, Decatur



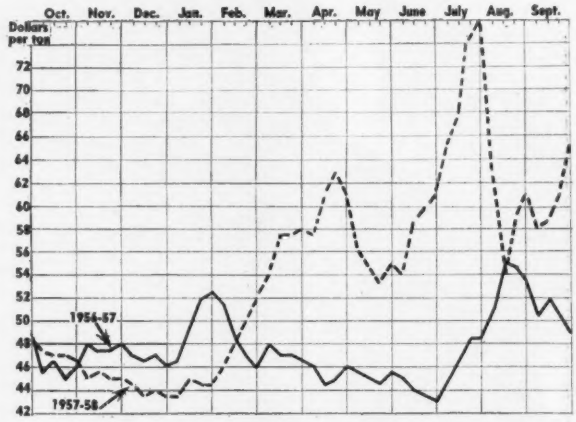
Crude Vegetable Oils and Lard



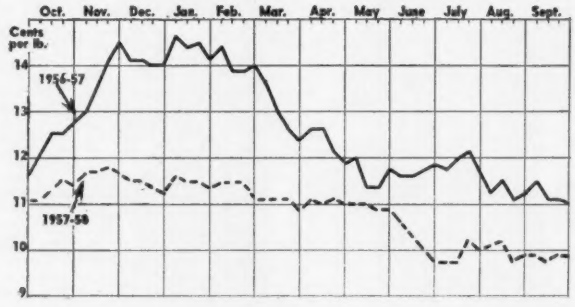
TRENDS AT A GLANCE (Weekly Close)
No. 1 Cash Soybeans, Chicago



Bulk Soybean Oil Meal, Decatur



Crude Soybean Oil, Tankcars



September Markets

THE SOYBEAN market in September was extremely sensitive to changes in the weather and such news as the Far Eastern situation. Both beans and oil weakened somewhat under the impact of the huge new crops just ahead.

Bulk soybean oil meal rose sharply during the month —up $8.50 from the low—due to increased mixed feed business coupled with some cutback in meal production as processors closed out old stocks. They had not yet had time to build up new stocks from new crop crushing in sufficient quantity to satisfy demand.

Less tension over Formosa and favorable harvest weather drove soybeans down to the season's lows with meal also taking a tumble at month's end.

Bullish factors included:

1—Growing opinion that the old-crop carryover may be a little larger than last year.

2—Reports that farmers were storing large quantities of new-crop beans and that buyers were disappointed at the small early crop movement. However, processors were able to buy substantial quantities of new-crop beans.

3—The large August crush of 31.6 million bushels helped to support the market.

But overhanging the markets were the September crop reports indicating the huge size of the soybean and other crops and the fact that the new crop will be available soon.

BYPRODUCTS. The price of soybean fatty acids remained at 15¼¢ per pound during September. Acid soybean soap stock delivered Midwest dropped from 4¾¢ to 4⅜¢. Raw soybean soap stock remained at 1⅜¢ per pound.

1956 AND 1957 SOYBEAN CROPS

	1957-58	1956-57
Soybeans crushed Oct. 1-Aug. 31	328,739,000 bu.	293,695,000 bu.
Balance on hand Sept. 1 for processing, export or carryover	45,139,000 bu.	36,630,000 bu.
Total soybeans inspected for overseas shipment and lake shipments to Canada Oct. 1-Sept. 26	85,966,749 bu.	85,383,117 bu.

Invest Your Advertising Money in a Growing Market

Geo. L. Prichard

SAYS George L. Prichard, Washington representative, National Soybean Processors Association, and general manager, Vegetable Oil Export Corp.: "The most significant factor in the U. S. farm economy is still the continuing upward trend of oils and fats production. This is due largely to the ever-increasing soybean acreage and outturn — **which is always anticipated by expanded processing capacity.**

"So far there has been no real evidence of any change in either legislation or policy which would forestall the continued and well-justified expansion of soybean acreage and production.

"A factor completely warranting the continuing expansion of soybean production is the phenomenal growth of the feeding of balanced rations—epitomized in the United States by the growth of the mixed feed industry.

"Before soybean production tipped up near the 500-million-bushel level there were many skeptics as to the actual demand for protein meals. One by one they have dropped by the wayside. Since last January when meal prices advanced sharply in the face of record production, there simply are none to be found who now doubt the **vast, unfilled domestic consuming demand for soybean and other protein at reasonable price levels."**

(From Mr. Prichard's speech before the International Association of Seed Crushers' Congress at Brussels.)

IN A YEAR when some advertising budgets are being cut of necessity, the wise advertiser will insist that his ad money be spent in fields and industries that are still growing. **The Soybean Digest is the only medium through which you can reach all of this young, dynamic and rapidly growing industry.**

ADDRESS INQUIRIES TO

The SOYBEAN DIGEST Hudson, Iowa

Also 35 East Wacker Drive, Chicago 1, Ill., and 70 East 45th St., New York 17, N.Y.

WASHINGTON DIGEST

USDA Wrestles with Huge Supplies

By PORTER M. HEDGE
Washington Correspondent for The Soybean Digest

DEPARTMENT of Agriculture officials are in the throes of adjusting budgets, working out storage requirements, drumming up export programs and other similar operations connected with handling the largest supplies of feed grains, bread grains, and oilseeds of record.

Last year's 490-million-bushel supply of soybeans presented a challenge which all groups—farm, industry and government — met successfully, with some assists from the weather in cutting cotton production and a smaller lard output than had been anticipated.

This year's 581-million-bushel soybean supply — crop plus carryover roughly estimated at 20 million bushels — presents an even greater challenge, and if the judgment of officials here is any criterion it is going to take a lot more effort to move the big 1958-59 supply than the smaller one a year ago.

But, as one of the able operating officials here put in to the Digest, "Something always turns up."

Until this "something" develops, USDA officials have to look at the situation as they find it. From this view soybeans are going to have a big year; the crush will be more dependent on the meal demand than oil; oil will be in difficulty during at least a part of the season; and the crop year will wind up with a carryover of a respectable size, which no one should be too concerned about at this stage.

Up 91 Million Bushels

This year's soybean supply of 581 million (estimated) is 91 million bushels larger than the supply a year ago. These extra bushels represent 1 billion pounds of oil—a good sized export program—and 2,150,000 additional tons of protein meal.

This increase is coming in a year when both lard and cottonseed oil production will be higher than a year ago (all edible fats and oils are figured to be up 14% this year) and there will be some increase in world supplies. The latter figure is not known, but a preliminary estimate is about 5%. The increase in lard over a year ago is 12%, and in cottonseed oil 8%, which means more competition at home with soybeans.

Even so, USDA officials say that with some extra push being given to exports of oil there can be a respectable export program in the season now beginning. The tentative estimates on soybean use go about like this:

Crush—360 million bushels.

Export as beans — 100 million bushels.

Feed and seed—35 million bushels.

Available for carryover and other use—86 million bushels.

These are not hard and fast figures. Nothing will be firmed up until about the time for the outlook meetings in November. Just ahead of this reports from agricultural attaches come in on crop conditions in other countries and prospective exports.

The above estimates are based on the way officials see things now, and with no foreknowledge of any special programs that might be brought forward during the marketing year.

Last year at this time officials had anticipated a 1958 soybean carryover of around 50 million bushels, based on early estimates of lard and cottonseed production. Both lard and cottonseed fell off, and the carryover is at least 30 million bushels lower.

The Commodity Credit Corp. advisory committee has recommended that Secretary of Agriculture Benson make soybean oil available to charitable organizations as provided in the Humphrey amendment to the law extending the Public Law 480 program.

There appears to be little question of USDA working up a program of this type before the new marketing year is far along.

The amendment, by Senator Hubert Humphrey of Minnesota, gives the Secretary of Agriculture authority to make "excess" edible oil available for export to charitable organizations. The recommendation is simply to use the authority available. In terms of need so far as the chari-

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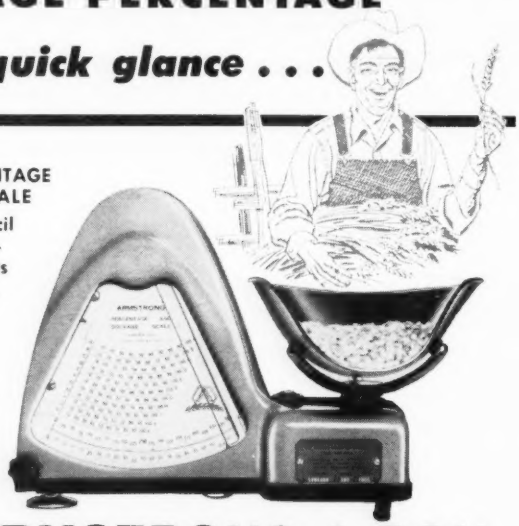

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table organizations are concerned, the total could run into several hundred million pounds.

The oil export situation has by no means firmed as yet. But the impression you get in Foreign Agricultural Service is that it will take a lot of doing to maintain edible oil exports at a high level again this year, though it can be done.

A good bit of 480 oil business is either signed up or being worked out. By far the largest customer under 480 again will be Spain—no details as yet, except that Spain will take a big volume again.

Support Rate

It's virtually assumed here that the 1959 price support rate on soybeans will be in the neighborhood of 60% of parity; maybe a little higher. This would mean $1.82 a bushel, based on current parity.

Outcome of the corn referendum Nov. 25 will have a bearing on the price support level. If the referendum surprises everybody and growers should vote to retain the present allotment system, the soybean rate would be higher than 60%.

No one here really thinks corn producers will vote to keep corn allotments under present conditions. Allotments for next year have been lowered from 38.8 million acres to about 33 million. A simple majority of those voting would kill the corn allotment program.

The biggest soybean loan program in history is expected this year. Close to 125 million bushels of soybeans are figured to go under price support during the coming year.

This is an estimate of USDA prepared for guidance of the grain storage industry advisory committee. Roughly 105 million bushels are expected to go under loan; about 20 million under purchase agreement.

Officials are in a sweat now as to whether to provide additional government storage for handling this year's big crops and takeover of grains next summer and fall. The trade generally is opposed to increasing capacity now, yet USDA is not certain large supplies can be handled otherwise. A decision will come later.

Soybean meal output will set a record of around 8.3 million tons for this crushing season, USDA estimates. The combined output of five oilseed meals is expected to total some 10.9 million tons — 3% above last season. Output of meals is expected to be larger in the coming season — some increase in soybean meal, and more cottonseed and peanut meal.

Don't Combine Too Early in Day

SLEEP A LITTLE later in the morning when you are combining soybeans, suggests Massey-Ferguson's magazine, Farm Profit. An early morning start may lose more beans than it is worth. When Ohio State University engineers studied combine losses, they found that 5 bushels per acre were left in the field under the damp straw and pod conditions of early morning. The loss was cut to 2 bushels in afternoon harvesting. Working late in the evening seemed to be the best way to stretch the day. Combining under the lights at 8 p. m. resulted in losses around the 2 bushel point.

The chart below shows where average losses occur. In general, from 60% to 95% of the beans left in the field never get into the combine. They are left on stalks that fall to the ground.

Combine reel speed is an important factor in cutterbar losses. Too much reel speed in respect to forward travel causes excessive shatter and tends to throw stalks to the ground.

Here's where you lose soybeans

Stubble
Beans too low to cut; left on stubble.

Shattered
Beans knocked off by reel and cutterbar; not recovered by the combine.

Stalk
Beans left on stalks which are cut off and fall to ground, missing the combine.

Cylinder
Unthreshed beans remaining in pods attached to stalks going out as straw.

Rack and Shoe
Separation losses; beans carried out with straw and pods.

Threshing losses can be cut with careful cylinder adjustment. Changes should be made several times during the day to make up for shifts in moisture conditions.

A combine can be adjusted to harvest beans with 18% moisture and that tends to reduce cutterbar losses to 1 bushel per acre. But it does cause a big loss in germination of seed beans and drying is necessary where beans are harvested much above 14% moisture.

— MARKET STREET —

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PNEUMATIC "AIR - CONVEYOR" systems—stationary units or bulk truck, new or used. Any size, capacity, distance or product. Nolder Co., Box 14, Corona Del Mar, Calif.

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FOR SALE—ANDERSON Expellers and French screw-presses, cookers, driers, 5-high, 48-inch crushing rolls, 36-inch attrition mills, sewing machines, hammermills, cracking rolls, filter presses. Ray L. Jones, 1923 Hayselton Drive, Jefferson City, Mo.

WANTED: FLAKING AND CRACKing rolls, meal coolers and driers and rollermills. Soybean Digest, Box 319-J, Hudson, Iowa.

IN THE MARKETS

EXPORTS. Preliminary data on U. S. exports of soybeans and soybean oil for July 1958, with comparable data for July 1957 and cumulative totals for the marketing years 1956-57 and 1957-58, reported by Foreign Agricultural Service, U. S. Department of Agriculture.

	Unit	July 1957	July 1958	October-July 1956-57	October-July 1957-58
Soybeans	bu.	4,629,140	6,389,084	73,018,739	77,353,968
Soybean oil:					
Crude	lb.	5,116,624	8,005,380	355,650,407	137,488,591
Refined but not further processed	lb.	15,805,519	989,679	79,331,345	125,048,790
Refined, deodorized and hydrogenated	lb.	13,420,485	55,401,362	324,621,307	346,503,793

Soybeans: Inspections for export by coastal areas and country of destination, August 1958 (1,000 bushels)

Atlantic		Korea	166
The Netherlands	56	Taiwan (Formosa)	341
Subtotal	56	Japan	3,547
Gulf		Subtotal	5,118
The Netherlands	455	**Lake Ports**	
Belgium	75	Canada	374
West Germany	168	Grand total	5,548
Israel	366	Total Jan.-Aug. 1958	43,234
		Total Jan.-Aug. 1957	44,979

Data are based on weekly reports of inspections for export by licensed inspectors and does not include rail or truck movement to Canada or Mexico. Agricultural Marketing Service.

Soybeans: Inspections for export by ports and lake shipments to Canada August 1958 (1,000 bushels)

Atlantic		**Lake Ports**	
Norfolk	56	Chicago	374
Gulf		Totals	
New Orleans	3,077	August 1958	5,548
Mobile	1,000	Jan.-Aug. 1958	43,234
Port Allen	1,041	Jan.-Aug. 1957	44,979

Based on weekly reports of inspections for export by licensed inspectors and does not include rail and truck movement to Canada or Mexico. Agricultural Marketing Service.

Title I, P. L. 480 shipments July-August 1958

	August 1958			July-August 1958		
	Metric tons	Unit	Quantity	Metric tons	Unit	Quantity
Cottonseed oil	650	lb.	1,433,000	688	lb.	1,517,000
Soybean oil	38,838	lb.	85,624,000	52,364	lb.	115,443,000

Title I, Public Law 480 export shipments July 1958

	Metric tons	Unit	Quantity
Cottonseed oil	38	lb.	83,000
Soybean oil	12,526	lb.	27,613,000

Foreign Agricultural Service.

PROCESSING OPERATIONS. Reported by Bureau of the Census for July and August.

Primary products at crude oil mill locations: Production, shipments and transfers, and stock, August 1958-July 1958 (2,000 pounds)

	Production		Shipments and transfers		Stocks end of month	
	August 1958	July 1958	August 1958	July 1958	Aug. 31, 1958	July 31, 1958
Soybean:						
Cake and meal	740,537	714,727	708,630	735,758	93,221	61,314
Flour	10,712	8,438	10,308	8,529	2,136	1,732

Soybeans: Net receipts, crushings, and stocks at oil mills, by states, August 1958-July 1958 (2,000 pounds)

	Net receipts at mills[1]		Crushed or used		Stocks at mills	
	August 1958	July 1958	August 1958	July 1958	Aug. 31, 1958	July 31, 1958
U. S.	440,796	740,358	948,598	898,680	419,690	927,492
Illinois	163,345	244,671	334,565	313,906	103,983	275,203
Indiana	(2)	70,274	86,206	84,163	(2)	103,763
Iowa	96,370	173,265	142,889	146,560	112,024	158,543
Kansas	(2)	(2)	(2)	(2)	(2)	(2)
Kentucky	(2)	(2)	(2)	(2)	(2)	(2)
Minnesota	52,354	103,442	85,268	82,293	24,588	57,502
Missouri	13,034	11,231	37,223	23,173	24,375	48,564
Nebraska	(2)	(2)	(2)	(2)	(2)	(2)
No. Carolina	(2)	(2)	(2)	2,444	(2)	3,239
Ohio	15,966	57,802	97,461	87,097	52,683	134,178
Texas	(2)	(2)	(2)	(2)	....	(2)
All other	99,727	79,673	164,986	159,044	102,037	146,500

[1] Net receipts for each state are derived by subtracting total shipments of beans from oil mills, from gross receipts at mills. [2] Included in "All other" to avoid disclosure of figures for individual companies.

Soybean products: Production and stocks at oil mill locations, by states, August 1958-July 1958

	Crude oil (thousands of pounds)				Cake and meal (tons)			
	Production		Stocks		Production		Stocks	
	August 1958	July 1958	Aug. 31, 1958	July 31, 1958	August 1958	July 1958	Aug. 31, 1958	July 31, 1958
U. S.	340,868	327,856	99,434	119,372	740,537	714,727	93,221	61,314
Ill.	125,181	119,428	25,102	33,560	256,594	244,229	35,459	23,302
Ind.	31,550	30,078	3,672	8,839	69,444	67,724	7,231	3,326
Iowa	50,502	51,217	15,447	26,731	115,709	118,137	11,631	5,533
Kans.	(1)	(1)	(1)	635	(1)	(1)	(1)	(1)
Ky.	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Minn.	25,301	29,057	33,392	18,793	58,447	68,355	8,022	3,066
Mo.	13,658	8,441	1,536	1,067	29,483	18,713	3,141	2,569
Nebr.	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
N. Car.	(1)	745	(1)	748	(1)	2,102	978	1,472
Ohio	35,000	31,029	5,686	10,005	77,390	68,640	6,109	4,396
Texas	(1)	(1)	....	(1)	(1)	(1)	(1)	(1)
All other	59,676	57,861	14,599	18,994	133,470	126,827	20,650	17,650

[1] Included in "All other" to avoid disclosure of figures for individual companies.

Production and stocks in byproduct feeds July and August 1958, with comparisons[1] (1,000 tons)

	Production				
	1956-57 season[3]	July 1957	May 1958	June 1958	July 1958
Soybean cake and meal	7,509.3	583.0	759.2	669.6	714.7
Cottonseed cake and meal	2,289.3	58.5	81.4	55.7	59.5

	Stocks[2]				
	Oct. 1, 1956	Aug. 1, 1957	June 1 1958	July 1 1958	Aug. 1 1958
Soybean cake and meal	111.3	129.0	104.7	82.3	61.3
Cottonseed cake and meal	140.9	251.8	182.7	162.2	112.5

[1] Data compiled from reports of the Bureau of the Census and Agricultural Marketing Service. [2] At processors' plants.

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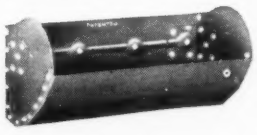

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STOCKS. Agricultural Marketing Service's commercial grain stocks reports for close of business on Friday or Saturday preceding date of report (1,000 bu.)

	Aug. 19	Aug. 26	Sept. 3	Sept. 9	Sept. 16	Sept. 23
U. S. soybeans in store and afloat at domestic markets						
Atlantic Coast	78	52	47	53	55	55
Gulf Coast	1,425	1,328	564	815	673	636
Northwestern and Upper Lake	772	755	462	319	263	127
Lower Lake	2,415	1,886	1,631	1,068	627	420
East Central	873	630	582	443	426	566
West Central						
Southwestern and Western	247	360	619	606	945	946
Total current week	5,810	5,011	3,905	3,304	2,989	2,750
Total year ago	6,519	5,644	4,788	4,577	3,559	3,741
U. S. soybeans in store and afloat at Canadian markets						
Total current week	72	27	0	41	5	59
Total year ago	1	61	21	0	0	0
Total North American commercial soybean stocks						
Current week	5,882	5,038	3,905	3,345	2,994	2,809
Year ago	6,520	5,705	4,809	4,577	3,559	3,741

Primary receipts (1,000 bu.) of soybeans at important interior points for week ending:

	Aug. 15	Aug. 22	Aug. 29	Sept. 5	Sept. 12	Sept. 19
Chicago	111	164	94	148	93	347
Duluth	....	....	....	9	....	....
Indianapolis	41	61	93	6	60	181
Kansas City	102	102	63	26	30	46
Minneapolis	52	50	16	6	30	7
Omaha	32	22	34	20	17	5
Peoria	23	70	70	71	140	147
Sioux City	2	2	2	5	5	2
St. Joseph	10	4	14	37	10	9
St. Louis	6	27	65	48	94	510
Toledo	15	50	36	13	15	20
Wichita	....	....	....	....	....	9
Totals	394	552	487	389	494	1,283
Last week	914	394	552	487	389	494
Last year	1,266	1,009	596	345	402	540
Total Chicago soybean stocks	2,380	3,225	1,629	....	625	413

INSPECTIONS. Soybeans inspected by grade and percent, reported by Agricultural Marketing Service.[1]

Grade	August 1958[2] 1,000 bu.	Pct.	July 1958 1,000 bu.	Pct.	August 1957 1,000 bu.	Pct.	Oct.-Aug. 1957-58 1,000 bu.	Pct.	Oct.-Aug. 1956-57 1,000 bu.	Pct.
No. 1	3,438	24	5,877	28	4,619	19	78,379	23	52,321	17
No. 2	6,749	47	9,532	45	10,421	42	147,036	43	125,979	42
No. 3	2,743	19	4,042	19	5,891	24	79,771	24	67,124	22
No. 4	1,109	8	1,324	6	2,833	12	26,766	8	40,128	13
Sample	294	2	350	2	736	3	7,814	2	17,463	6
Total	14,333	100	21,125	100	24,500	100	339,766	100	303,015	100

[1] Carlot receipts have been converted to bushels on the basis that 1 carlot equals 1,750 bushels. [2] Of the August receipts, 1,750 bushels were mixed, and the remainder yellow soybeans. Inspections of soybeans in August included 5,178,997 bushels as cargo lots, 1,648,459 bushels as truck receipts, and the balance as carlot receipts. Based on reports of inspections by licensed inspectors at all markets.

CANAL SHIPMENTS. Northbound shipments of oilseeds through the Suez Canal in October 1957-June 1958 (the first 3 quarters of the marketing year) were down sharply from the corresponding 9-month period in 1956-57, reports Foreign Agricultural Service, USDA. Likewise, shipments in June of this year—down appreciably from May—were sharply below June of last year, and the tonnage was only half of that in June 1956.

Soybean shipments in June totaled 35,000 short tons (1.2 million bushels). They were almost 10% below those of May, but about 40% above those in June 1957. October-June shipments of soybeans totaled 301,000 short tons (10 million bushels), down nearly 40% from the volume shipped in the first 9 months of the 1955-56 marketing year.

Soybeans: Suez Canal, northbound shipments May and June 1956-58, October-June 1955-56 and 1957-58[1] (1,000 short tons[2])

May			June			October June	
1956	1957	1958	1956	1957	1958	1955-56	1957-58
63	22	39	67	25	35	488	301

[1] Marketing year 1955-56, rather than 1956-57, is given for use in comparisons since the Suez Canal was closed November 1956 through March 1957. [2] To convert to bushels use 33.3 bushels per ton. Source: Monthly Bulletin, Suez Canal Authority.

FACTORY USE VEGETABLE OILS for June and July 1958. Reported by Bureau of the Census (1,000 lbs.)

Primary materials: Factory production and consumption, and factory and warehouse stocks, July 1958-June 1958

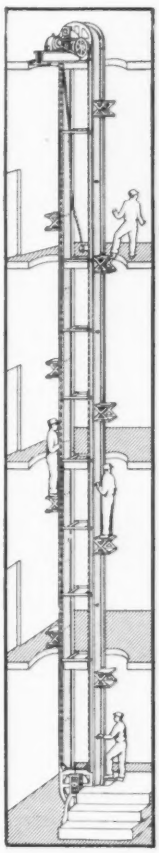
	Factory production		Factory consumption		Factory and warehouse stocks	
	July 1958	June 1958	July 1958	June 1958	July 31, 1958	June 30, 1958
Cottonseed, crude	45,054	43,206	53,996	72,490	37,972	45,678
Cottonseed, refined	49,368	66,351	82,658	84,589	129,763	169,030
Soybean, crude	327,856	310,913	267,847	314,314	243,232	222,903
Soybean, refined	251,997	299,924	268,445	307,519	120,324	119,796
Vegetable foots (100% basis)	18,317	18,800	11,780	13,835	55,485	....
Hydrogenated vegetable oils—						
Edible:						
Cottonseed	21,433	23,144	19,232	19,723	10,505	11,244
Soybean	118,194	121,767	117,870	106,607	41,719	48,949
Other	5,836	5,949	5,796	5,264	3,145	3,157
Margarine [1]	120,884	112,912	(NA)	(NA)	32,406	33,906

NA—Not available. [1] Data for stocks exclude quantities held by consuming factories.

Factory consumption of vegetable oils, by uses, during July 1958

	Edible products			Inedible products			
	Shortening	Margarine	Other edible	Soap	Paint and varnish	Lubricants and similar oils[1]	Other inedible[2]
Cottonseed, refined	9,298	453	2,199	[3]	[3]	[3]	122
Soybean, crude	....	....	[3]	58	379	[3]	1,417
Soybean, refined	43,736	7,382	10,384	[3]	6,639	39	5,939
Foots, vegetable, raw and acidulated (100% basis)	....	....	....	1,800	86	[3]	3,499
Hydrogenated vegetable oils, edible:							
Cottonseed	8,141	8,424	2,667	....	....	....	....
Soybean	37,748	77,728	2,380	....	[3]	....	[3]
Other	2,165	2,225	[3]	....	....	....	....

[1] Includes quantities consumed in lubricants, greases, cutting oils, dielectric oils, core oils, brake fluids, and metal working. [2] Quantities consumed in linoleum and animal feeds are included in above totals. [3] Not shown to avoid disclosure of figures for individual companies.



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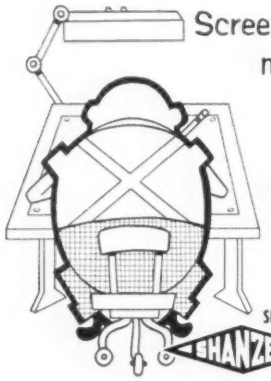

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Consumption of primary oils in fat splitting

	1958			1957	
	July	June	Jan.-July Cumulative	July	Jan.-July Cumulative
Soapstocks					
Vegetable foots	5,566	7,246	42,366	6,591	52,946

Source: U. S. Census Bureau.

PRICES. Average prices for soybeans received by farmers, effective parity, and support rates, reported by Agricultural Marketing Service (dollars per bushel)

Average farm price			Effective parity	Av. price as percent of parity	National average price support rate		
Aug. 15 1958	July 15 1958	Aug. 15 1957	Aug. 15 1958	Aug. 15 1958	1958 crop	1957 crop	1956 crop
2.11	2.11	2.27	3.03	70	2.09	2.09	2.15

Average farm and parity prices from crop reporting board.

SUPPLIES. Supply and distribution of the 1954-57 soybean crops, reported by Agricultural Marketing Service (1,000 bu.)

	1954-55	1955-56	1956-57	1957-58
Carryover, Oct. 1	1,345	9,949	3,731	9,891
Production	341,075	373,522	449,446	479,841
Total supply [1]	342,420	383,471	453,177	489,732
Farm use, including seed for season	24,000	30,000	42,000	33,000
Quantity remaining for processing, export, or carryover	318,420	353,471	411,177	456,732
Disappearance, October through Aug. 31:				
Crushed for oil or processed [2]	230,298	263,250	293,695	328,739
Exported	56,642	64,604	80,852	[3] 82,854
Total	286,940	327,854	374,547	411,593
Balance on Sept. 1 for processing, export, or carryover	31,480	25,617	36,630	45,139

[1] Imports not included because negligible. [2] No allowance is made for new crop crushings prior to Oct. 1. [3] Partly estimated.

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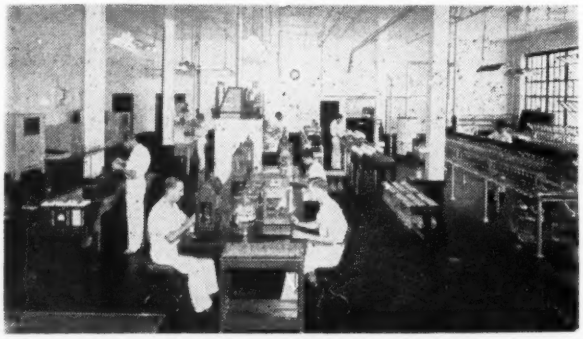

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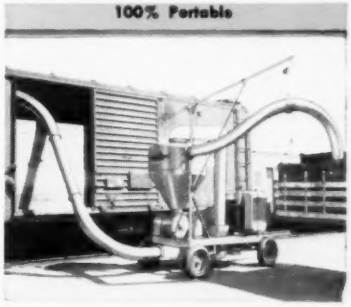

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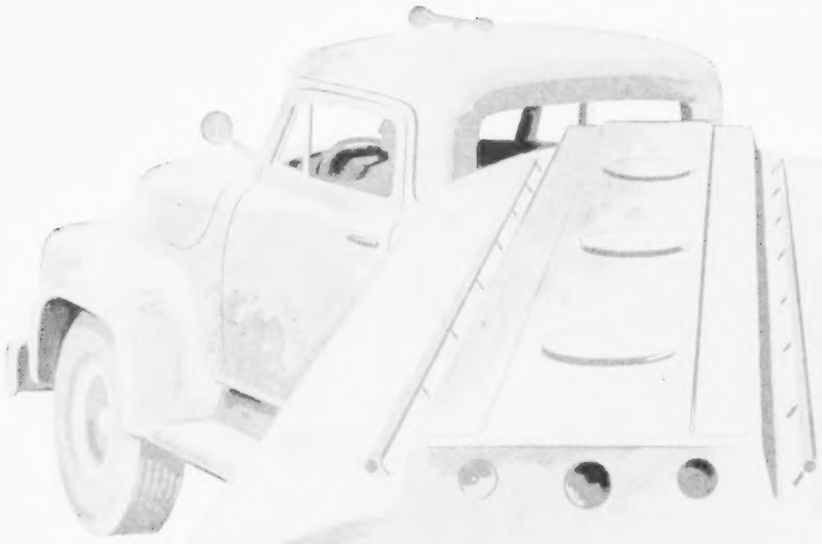

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